

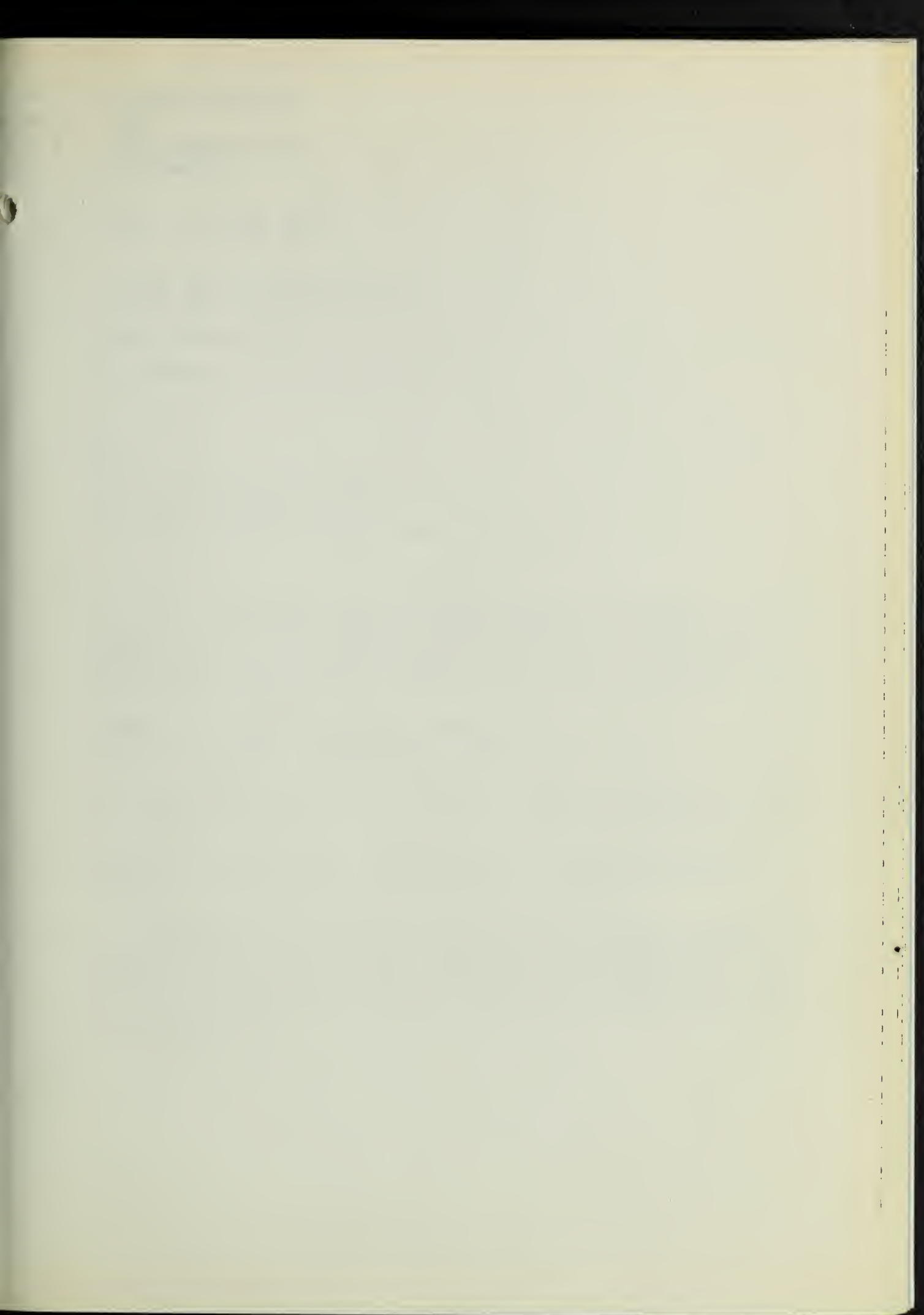
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# **EIGHTH ANNUAL REPORT 1972**



**MASSACHUSETTS  
BAY  
TRANSPORTATION  
AUTHORITY**









**MASSACHUSETTS  
BAY  
TRANSPORTATION  
AUTHORITY**

500 Arborway, Boston, Mass. 02130

EIGHTH ANNUAL REPORT / 1972

MASSACHUSETTS BAY

TRANSPORTATION AUTHORITY

TO:

His Excellency the Governor  
The General Court, and  
The Advisory Board to the  
Massachusetts Bay Transportation Authority

In accordance with the requirements of Section 5(h) of Chapter 161A of the General Laws, the Directors of the Massachusetts Bay Transportation Authority herewith render the eighth report of the Authority covering operations for the calendar year 1972.

SUMMARY OF THE NET COST OF SERVICE  
JANUARY 1, 1972 - DECEMBER 31, 1972

The Authority's net assessable cost of service to the 79 cities and towns in the District was \$73,413,736.94.

Total income amounted to \$59,838,108.88 and total current expenses were \$152,589,822.17, leaving a cost of service in excess of income of \$92,751,713.29.

The difference between the cost of service in excess of income and the net assessable cost of service resulted primarily from state reimbursement for the Authority's debt service and commuter railroad subsidies, reimbursement by the City of Lowell for Authority bus service, and unreimbursed depreciation.



The following table shows the results of the experiments conducted on the effect of the temperature of the water on the rate of the reaction. The temperature of the water was varied from 10°C to 30°C, and the rate of the reaction was measured by the volume of gas evolved in a given time. The results show that the rate of the reaction increases with increasing temperature, and that the increase is more rapid at higher temperatures.

Temperature (°C)	Volume of gas evolved (cm <sup>3</sup> )
10	1.0
20	2.5
30	5.0



In addition to the net assessable cost of service, there are three other items which must be considered by the 79 cities and towns in their 1973 account settlement with the Commonwealth. These are:

Net Assessable Cost of Service	\$73,413,736.94
Interest Charged by State Treasurer on Temporary Borrowings (Estimated)	\$ 2,153,500.00
Expenses of Boston Metropolitan District	<u>\$ 16,000.00</u>
SUBTOTAL	\$75,583,236.94
Less Pupils' Reimbursement Chapter 17, Section 7B (Estimated)	<u>\$ 1,000,000.00</u>
NET COST TO COMMUNITIES	\$74,583,236.94

The following table illustrates the Authority's net cost of service including all elements of cost for fiscal 1972 and the apportionment of these costs by express and local service according to formulae contained in the legislation establishing the Authority.



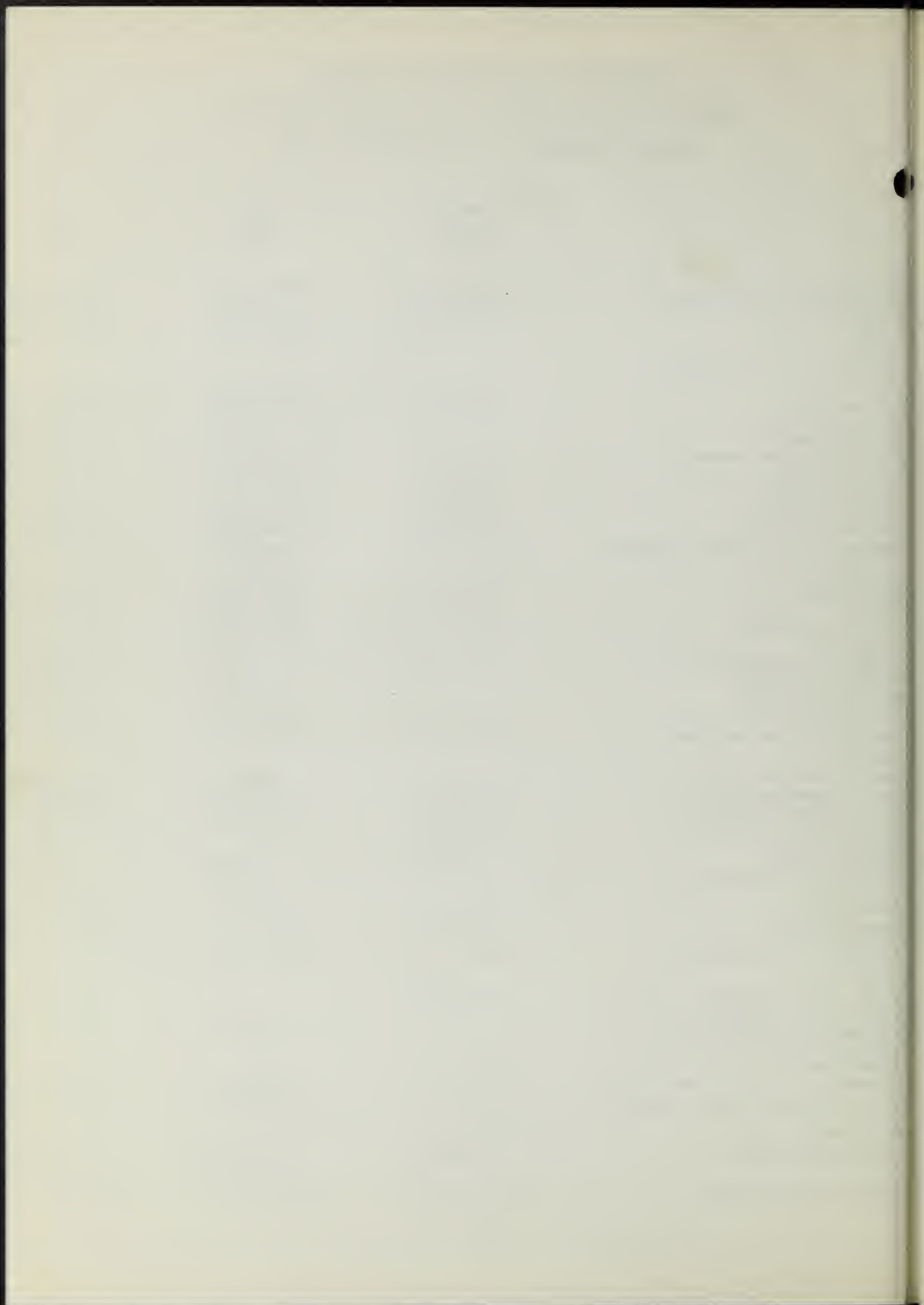


MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF NET COST OF SERVICE - LOSS - BY EXPRESS AND LOCAL

CALENDAR YEAR JANUARY 1, 1972 TO DECEMBER 31, 1972

	<u>Express Service</u>	<u>Local Service</u>	<u>Total</u>
Income:			
Revenue from Transportation	\$27,909,241.00	\$25,781,358.40	\$53,690,599.40
Revenue from Other Rwy. Operations	1,007,299.13	268,191.53	1,275,490.66
Non-Operating Income	<u>3,245,881.38</u>	<u>1,626,137.44</u>	<u>4,872,018.82</u>
TOTAL INCOME	32,162,421.51	27,675,687.37	59,838,108.88
Operating Wages and Fringe Benefits:			
Wages	39,562,084.67	43,294,771.04	82,856,855.71
M.B.T.A. Pensions	4,785,600.64	5,184,400.70	9,970,001.34
Social Security Taxes	1,433,195.32	1,552,628.26	2,985,823.58
Workmen's Compensation	429,100.25	464,858.61	893,958.86
Accident and Sickness Insurance	297,149.57	321,912.04	619,061.61
Group Life Insurance	495,597.00	536,896.75	1,032,493.75
Blue Cross-Blue Shield	2,931,022.17	3,175,274.02	6,106,296.19
Unemployment Insurance	17,158.66	18,588.54	35,747.20
Uniform and Work Clothes	<u>78,524.56</u>	<u>157,500.94</u>	<u>236,025.50</u>
TOTAL OPERATING WAGES AND FRINGE BENEFITS	50,029,432.84	54,706,830.90	104,736,263.74
Material and Other Items	4,634,377.39	5,898,298.50	10,532,675.89
Injuries and Damages	368,978.83	1,140,502.33	1,509,481.16
Depreciation	(38,930.00)	(180,816.00)	(219,746.00)
Interest on Unfunded Debt	1,025,557.97	1,305,255.59	2,330,813.56
Rent	3,014,974.76	1,465,450.11	4,480,424.87
Expenses (Other than included above)	72,120.33	609,984.33	682,104.66
Railroad Commuter Subsidy	7,255,401.23	-	7,255,401.23
Middlesex & Boston Subsidy	-	618,528.83	618,528.83
Metropolitan Transit Inc. Subsidy	<u>-</u>	<u>202,292.48</u>	<u>202,292.48</u>
TOTAL OPERATING EXPENSES AND TAXES	66,361,913.35	65,766,327.07	132,128,240.42
Fixed Charges:			
Interest on Funded Debt (M.T.A.)	3,000,922.17	1,000,307.39	4,001,229.56
Interest on Funded Debt (M.B.T.A.)	7,417,085.22	481,388.21	7,898,473.43
Payment on Funded Debt (M.T.A.)	2,268,018.52	1,221,240.74	3,489,259.26
Payment on Funded Debt (M.B.T.A.)	4,290,000.00	742,981.37	5,032,981.37
Cambridge Subway Rental	7,726.70	-	7,726.70
Miscellaneous Debits	10,928.41	3,642.80	14,571.21
Bank Service Charges (M.B.T.A.)	<u>15,952.76</u>	<u>1,387.46</u>	<u>17,340.22</u>
TOTAL FIXED CHARGES	17,010,633.78	3,450,947.97	20,461,581.75
TOTAL CURRENT EXPENSES	83,372,547.13	69,217,275.04	152,589,822.17
EXCESS OF SERVICE IN EXCESS OF INCOME	51,210,125.62	41,541,587.67	92,751,713.29
Adjustments:			
State Fin. Contract Assistance - M.T.A.	3,000,000.00	-	3,000,000.00
State Fin. Contract Assistance - M.B.T.A.	9,021,293.20	603,454.99	9,624,748.19
Gas & Diesel Taxes Reimbursable	-	369,107.67	369,107.67
State Financial Contract Assistance on			
Railroad Subsidy	6,202,448.49	-	6,202,448.49
Reimbursement from Outside Communities	<u>-</u>	<u>361,418.00</u>	<u>361,418.00</u>
TOTAL CONTRACT ASSISTANCE AND ADJUSTMENTS	18,223,741.69	1,333,980.66	19,557,722.35
NET COST OF SERVICE - LOSS	32,986,383.93	40,207,607.01	73,193,990.94
LOSS - UNREIMBURSED DEFICIT	<u>(38,930.00)</u>	<u>(180,816.00)</u>	<u>(219,746.00)</u>
ASSESSABLE COST OF SERVICE	\$33,025,313.93	\$40,388,423.01	\$73,413,736.94

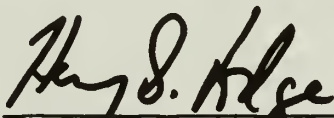


The balance sheet and statement of long-term debt of the Massachusetts Bay Transportation Authority as of December 31, 1972, and the related statements of revenue and cost of service, unreimbursed cost of service, and source and disposition of funds for the fiscal year ended December 31, 1972, together with notes relating to these financial statements are appended to this report.

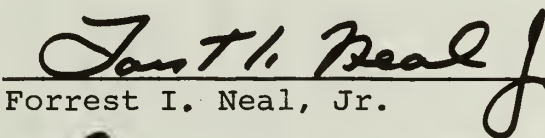
Respectfully submitted,

Board of Directors

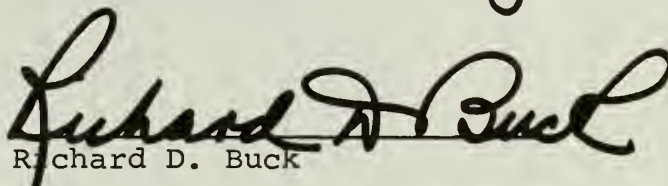
Massachusetts Bay Transportation Authority



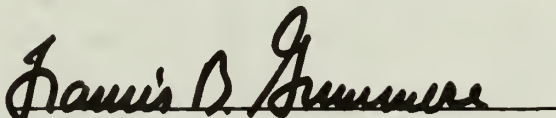
Henry S. Lodge, Chairman



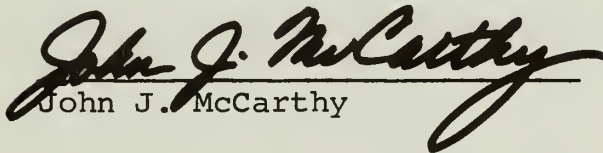
Forrest I. Neal, Jr.



Richard D. Buck



Francis B. Gummere



John J. McCarthy

March 30, 1973

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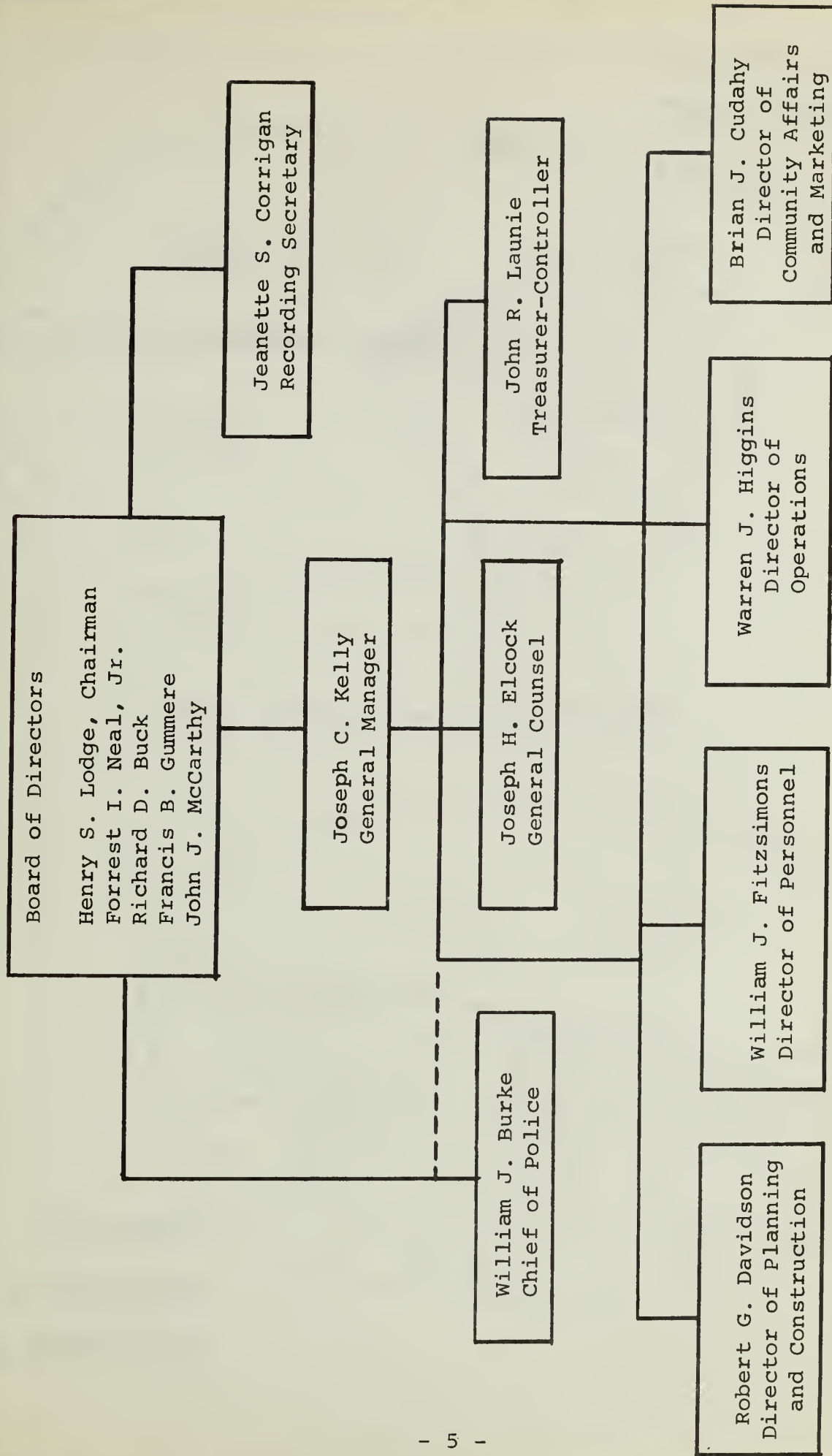
Dear Mr. [illegible]

I have received your letter of the 10th and am glad to hear from you.

I am sure that you will find the enclosed of interest.

Very truly yours,  
[illegible signature]

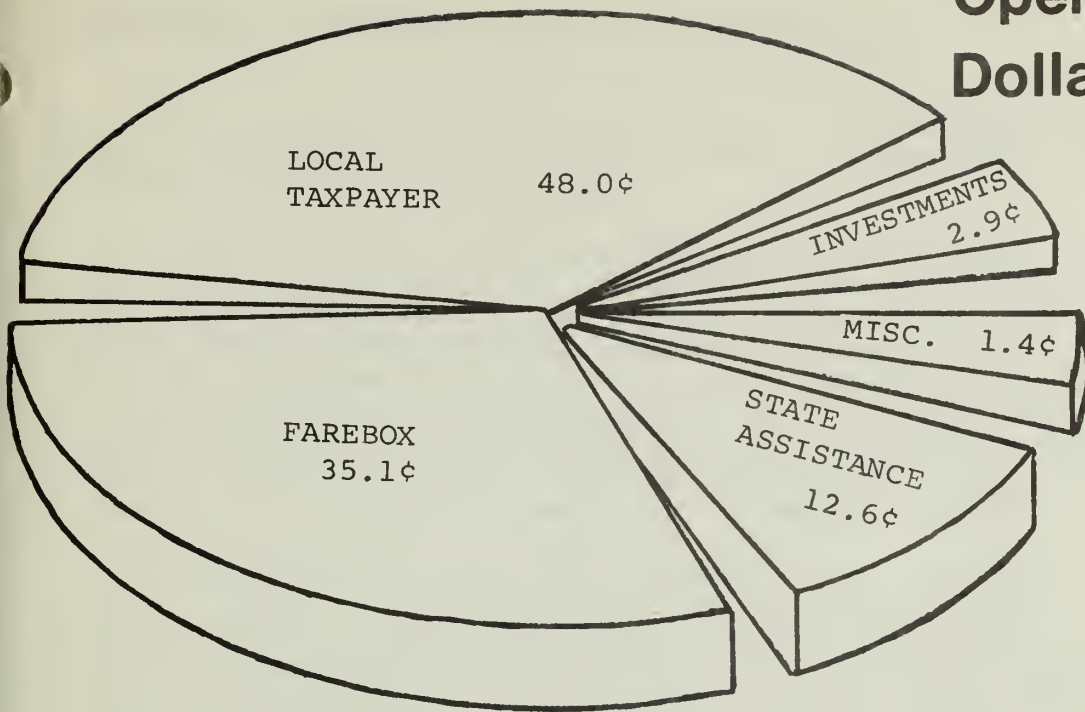
# THE ORGANIZATION OF THE AUTHORITY



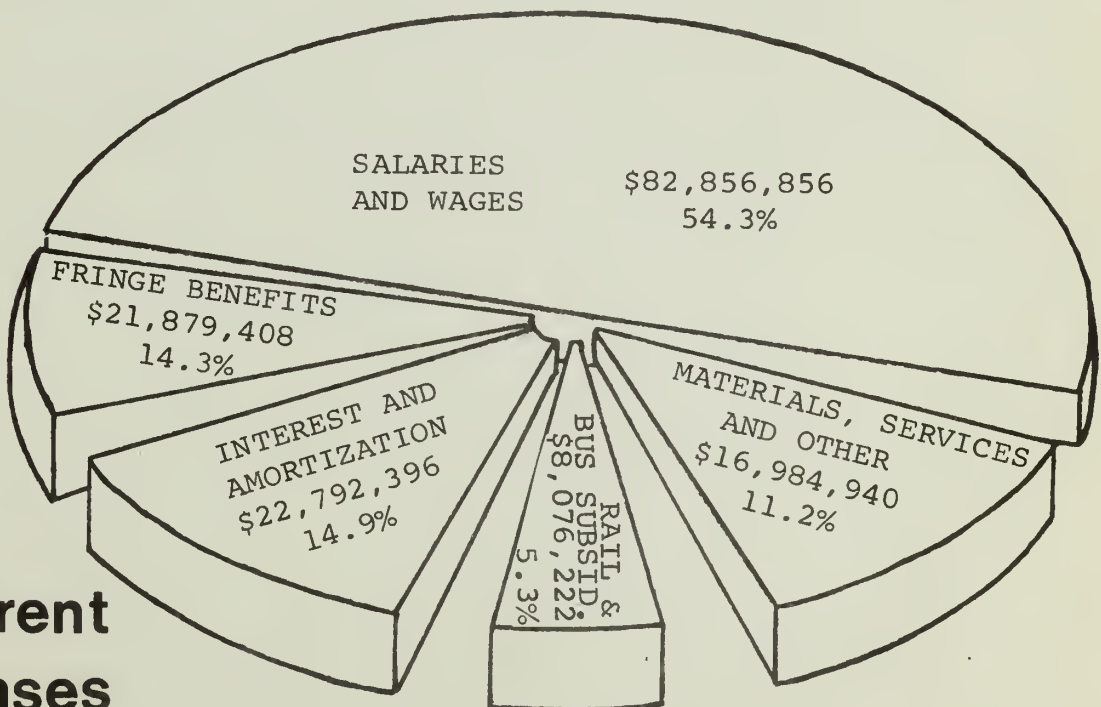




## Source of Operating Fund Dollar



Year Ending December 31, 1972



**Current  
Expenses**

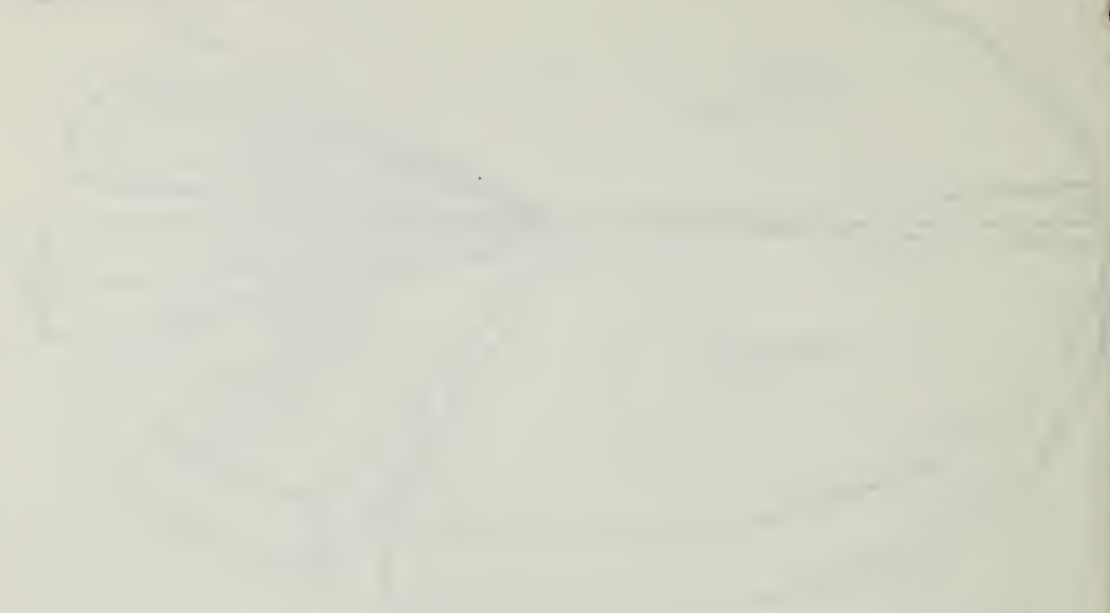
**\$152,589,822**



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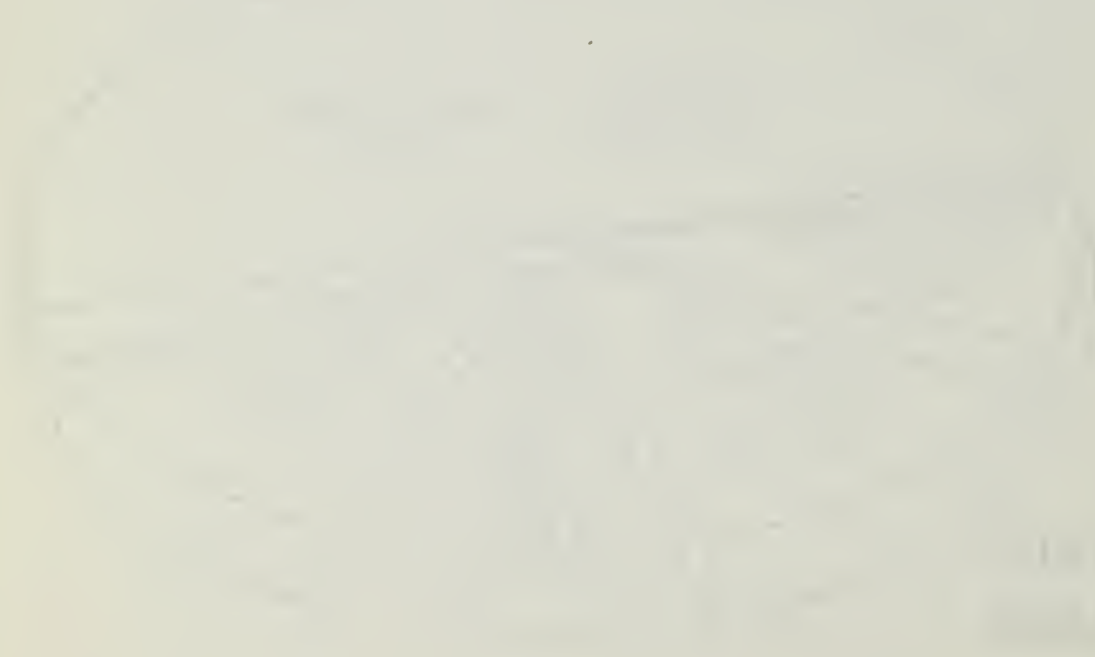
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## COMPREHENSIVE PROGRAM FOR MASS TRANSPORTATION

The Authority's Program for Mass Transportation, or Master Plan, as adopted in 1966, and revised in 1968, 1969 and 1971, underwent no revisions in 1972.

However, during 1973, the Authority anticipates major revisions to the Master Plan through a "Transit Development Program" being prepared for the period 1973 through 1977. The Transit Development Program will be designed to meet new requirements of the Urban Mass Transportation Administration, and the U.S. Department of Transportation. It will also adapt the existing Master Plan to include items of transit investment recommended by His Excellency, Governor Francis W. Sargent in his transportation policy statement of November 30, 1972.

Under Chapter 161A of the General Laws, the Authority's Program for Mass Transportation is subject to the approval of the Advisory Board. The Program must be prepared by the Authority in consultation with the Metropolitan Area Planning Council and other appropriate agencies of the Commonwealth and Federal Government. It must also be based on the transportation plans and programs adopted by the Department of Public Works of the Commonwealth.

The following charts show the funding status of Master Plan Projects initiated under Chapter 563, Acts of 1964, and Chapter 1075, Acts of 1971:



CAPITAL IMPROVEMENTS  
INITIATED UNDER CH. 563, ACTS OF 1964  
AS OF DECEMBER 31, 1972

<u>PROJECT</u>	<u>AUTHORIZED BOND FUNDING</u>	<u>EXISTING FEDERAL FUNDS</u>	<u>OTHER AID</u>	<u>CURRENT BUDGET</u>
HAYMARKET-NORTH EXTENSION	\$86,995,600	\$63,209,400	\$12,000,000	\$162,205,000
SOUTHWEST CORRIDOR EXTENSION - SOUTH COVE TUNNEL	\$15,904,200	\$ 497,800	\$ 344,000	\$ 16,746,000
HARVARD-ALEWIFE EXTENSION	\$ 629,000			\$ 629,000
SOUTH SHORE EXTENSION	\$61,572,400	\$38,821,600	\$ 3,237,000	\$103,631,000
SOUTH BAY MAINTENANCE CENTER	\$10,484,500	\$19,120,000	\$ 7,428,500	\$ 37,033,000
STATION MODERNIZATION - PHASE I	\$ 7,243,800	\$ 6,077,300	\$ 1,306,900	\$ 14,628,000
EXISTING PLANT IMPROVEMENTS	\$ 3,803,500			\$ 3,803,500
SYSTEMWIDE MODERNIZATION	\$ 1,500,000	\$ 3,000,000		\$ 4,500,000
REVENUE EQUIPMENT	\$12,694,300	\$ 3,136,700		\$ 15,831,000
310 BUS PROGRAM	\$ 4,050,000	\$ 8,100,300		\$ 12,150,300
TECHNICAL AND ENGINEERING STUDIES, DESIGN, ADMINISTRATION	<u>\$20,122,700</u>	<u>\$ 1,783,100</u>	<u>\$ 411,200</u>	<u>\$ 22,317,000</u>
TOTAL	\$225,000,000	\$143,746,200	\$24,727,600	\$393,473,800

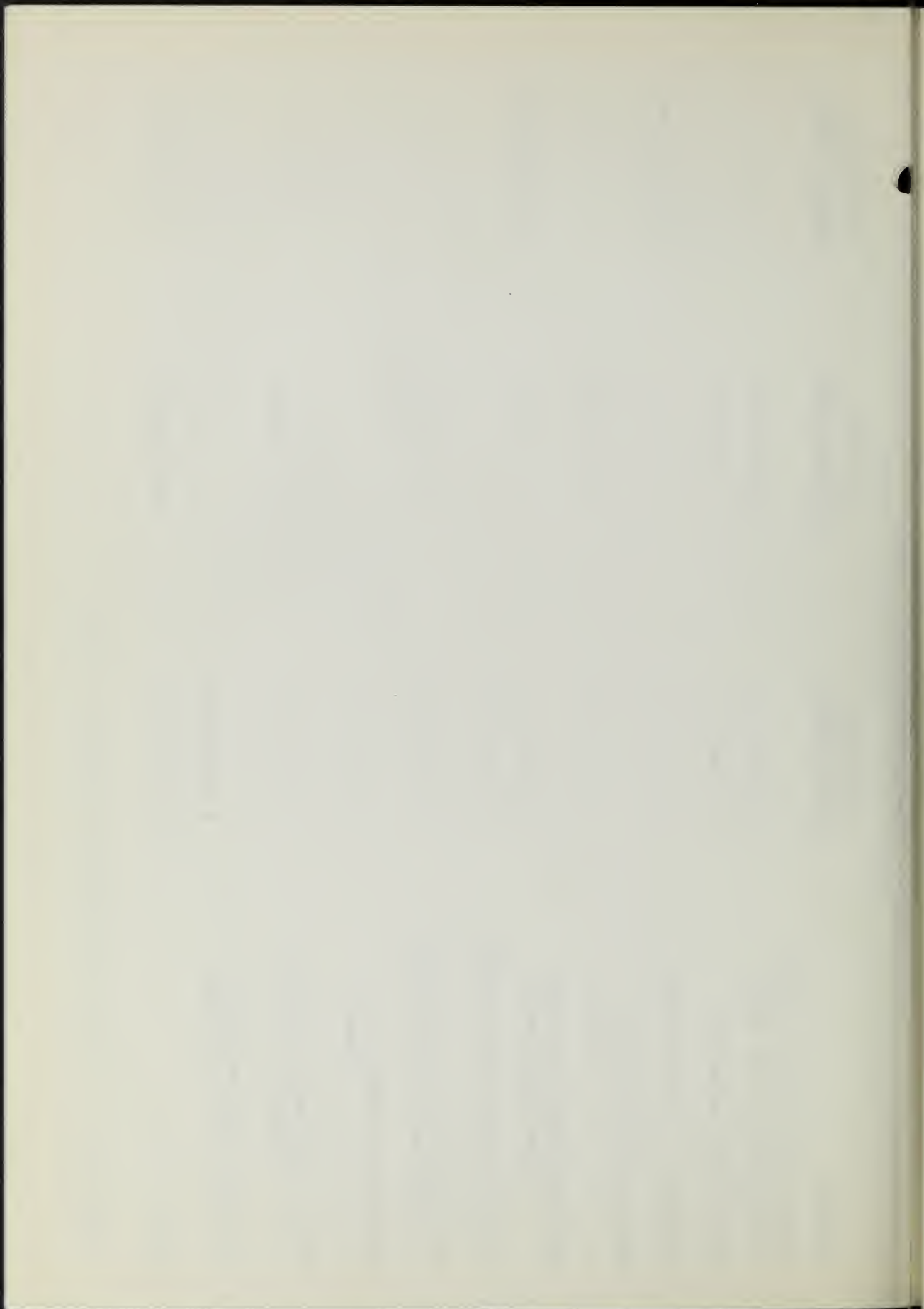


AS OF DECEMBER 31, 1972

<u>PROJECT</u>	<u>AUTHORIZED BOND FUNDING</u>	<u>EXISTING FEDERAL FUNDS</u>	<u>REQUESTED FEDERAL FUNDS</u>
CENTRAL AREA SUBWAY SYSTEM (INCLUDING ROLLING STOCK)	\$30,000,000	\$58,213,333	
PINES RIVER EXTENSION	\$13,000,000	200,000	
ROLLING STOCK REPLACEMENT	\$11,000,000		\$22,000,000
STATION MODERNIZATION - PHASE II	\$ 5,000,000	\$ 9,565,086	
NEW BUS GARAGES AND OTHER PLANT IMPROVEMENTS	\$25,000,000	\$ 570,000	\$31,910,146*
PRIVATE CARRIER IMPROVEMENTS	\$ 2,000,000		
HARVARD-ALEWIFE CONSTRUCTION PLANS AND SPECIFICATIONS	\$ 2,000,000	\$ 200,000	
SOUTH SHORE EXTENSION - PHASE II	\$ 8,000,000		
FOREST HILLS-WEST ROXBURY- NEEDHAM EXTENSION	\$20,000,000	\$ 200,000	
PRIORITY RIGHT-OF-WAY AC- QUISITION	<u>\$ 8,000,000</u>		
TOTAL	\$124,000,000	\$68,948,419	\$53,910,146

\* Additional \$1,573,146 grant approved January 2, 1973.







STATUS OF FUNDS  
FOR  
CAPITAL IMPROVEMENTS PROGRAM  
AS OF DECEMBER 31, 1972

AUTHORIZED BOND FUNDING

Chapter 563, Acts of 1964  
Chapter 1075, Acts of 1971\*

\$225,000,000  
124,000,000

TOTAL

\$349,000,000

FEDERAL FUNDS

Existing for Chapter 563 Projects  
Existing for Chapter 1075 Projects\*  
Requested for Chapter 1075 Projects\*  
Requested for Advance Land Acquisition Loan\*\*

\$143,746,200  
68,948,419  
53,910,146  
19,500,000

TOTAL AS OF DECEMBER 31, 1972

\$286,104,765

OTHER AID

Chapter 563 Projects  
Chapter 1075 Projects

\$ 24,746,200  
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TOTAL TO DECEMBER 31, 1972

\$ 24,746,200

TOTAL FUNDING

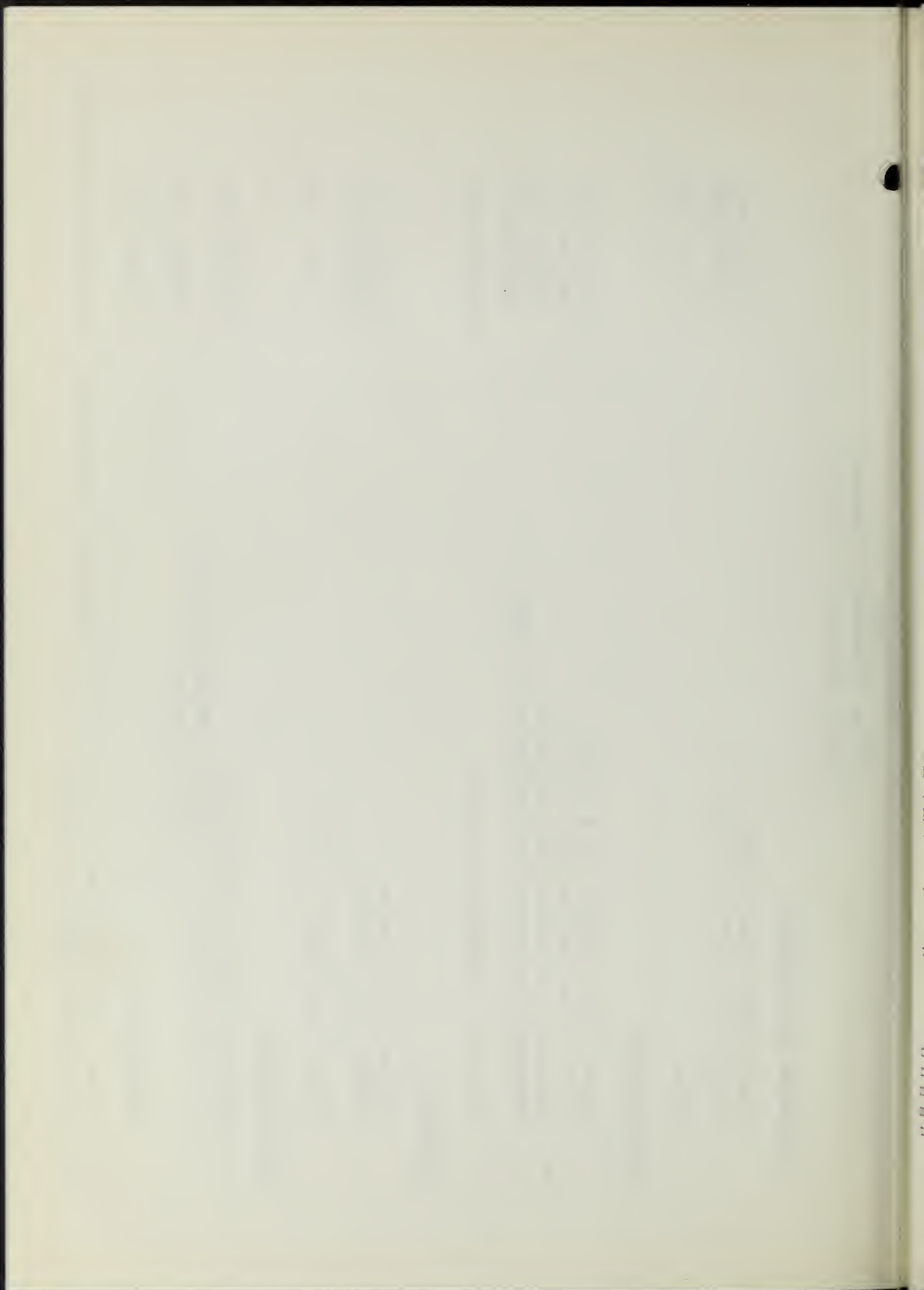
Total for Chapter 563 Projects  
Total for Chapter 1075 Projects\* (With two-thirds  
Federal Funding)

\$393,473,800  
372,000,000

GRAND TOTAL

\$765,473,800

\* Chapter 1075 stipulates that local bond funds must be matched by two-thirds federal grants.  
\*\* Loan approved January 24, 1973.



## NEW AND PROPOSED LEGISLATION

In the final hours of the 1972 session of the General Court emergency legislation, submitted by Governor Francis W. Sargent, was passed ending a threat of a shutdown of the transportation system because of a lack of funds. The potential transportation crisis resulted when the Advisory Board reduced a \$20.2 million supplementary budget request, first to zero and then by about 75 percent, and the General Court rejected Advisory Board bills to allow the Commonwealth to assume, in whole or in part, the Authority's net cost of service.

### Railroad Subsidies

The General Court also authorized the Commonwealth to pay, effective August 1 and for one year, \$7.6 million, or 100 percent of the cost of all commuter trains operating in the Commonwealth. In previous years, the Commonwealth paid 90 percent and the Authority 10 percent of the cost of commuter railroad service on the Boston & Maine Railroad lines and on certain lines of the Penn Central Transportation Company.

### Other Legislation

Other legislation affecting the Authority includes:

--An Act relative to the suspension of examinations for police service positions under the Civil Service Law.

--An Act providing that any person appointed as a regular police officer on a permanent basis in any city or town, the Metropolitan District Police, the Massachusetts Bay Transportation Authority police, employees of the Registry of Motor Vehicles with police powers, or the Capitol Police shall attend a police training school, and shall receive certain in-service supervisory training.

--An Act requiring operators of certain vehicles to shut off their engines after a specified period of idling.

--An Act authorizing any city or town to enter into contracts to provide public transportation.

### 1973 Bills

Six bills were filed by the Authority for the General Court's consideration in 1973, including two pertaining to bond issues. One requests authorization for a \$10 million bond issue to upgrade commuter railroads in the Commonwealth and the other requests a \$6 million bond issue for Phase I of the Harvard-Alewife Extension of the Red Line.



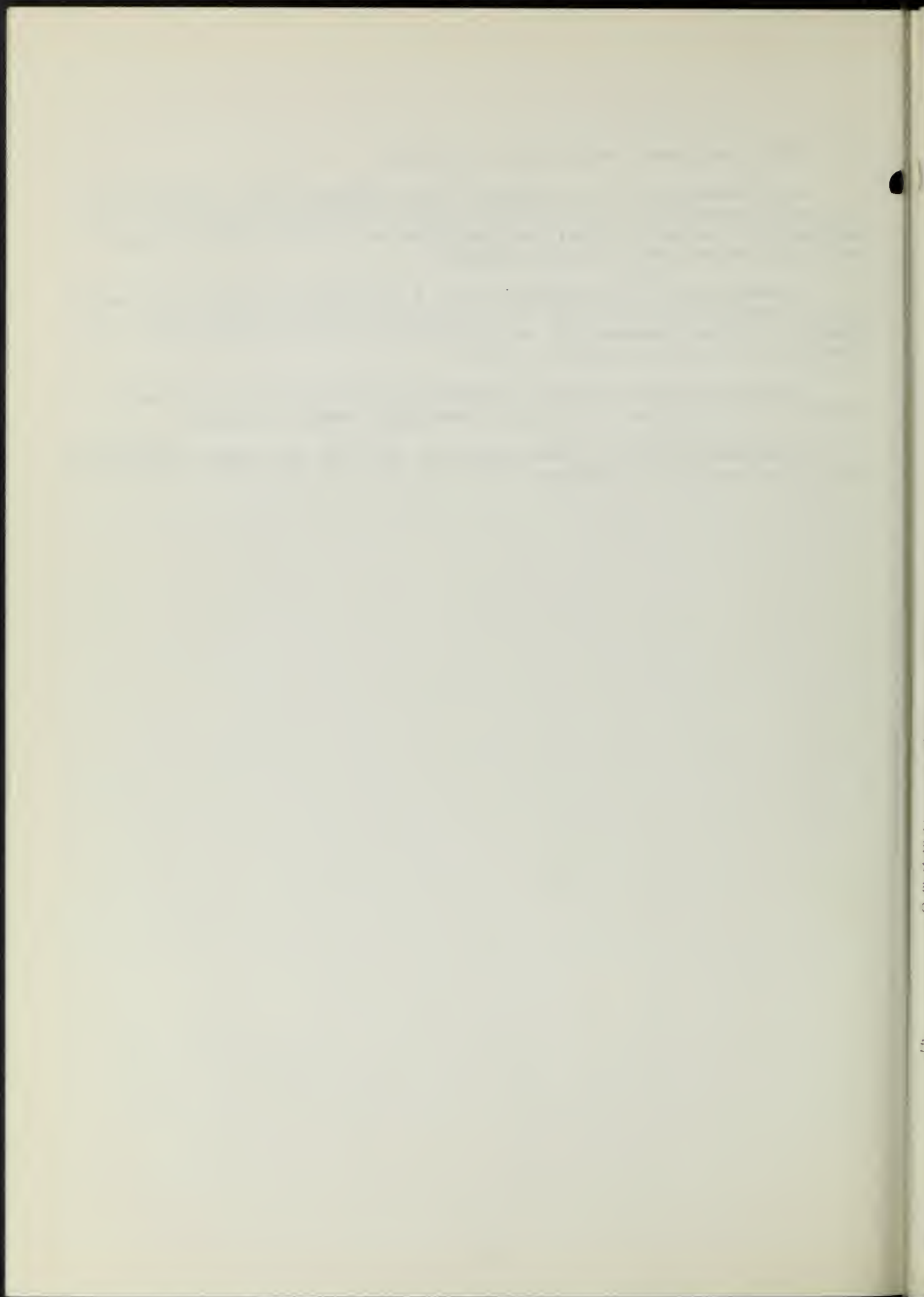
Other proposed legislation includes:

--An Amendment to the General Law (Chapter 161A, section 21) so that recovery for pain and suffering in certain actions of tort against the Authority shall be the same as recovery for pain and suffering under the no-fault concept.

--Exemption of the Authority as a self-insurer under the Workmen's Compensation Law, and from having to obtain surety on a bond running to the Commonwealth as required by the General Laws (Chapter 152, Section 25A (2) (b).)

--Authorization for the Authority to make entry on private land for the purpose of surveys, soundings and drillings.

--Authorization for the Authority to sell its power substation and adjoining land in Malden.





## HIGHLIGHTS OF 1972

### JANUARY

The Authority filed a petition in Massachusetts Superior Court to vacate an arbitrator's award of \$18 million to the Boston & Maine Railroad for its Reading Line. This line will be the route of the Haymarket-North Rapid Transit Extension to Malden.

New color schemes were adopted for Authority vehicles. The bus fleet now features bright yellow, and the rapid transit and trolley cars will be painted in colors appropriate to the code of the line on which they operate.

The Urban Mass Transportation Administration approved a capital facilities grant of \$568,940 for the acquisition of non-revenue vehicles.

### FEBRUARY

Final design contracts were awarded for the 200-bus garage and for the signal system for the rapid transit complex at the South Bay Maintenance Center.

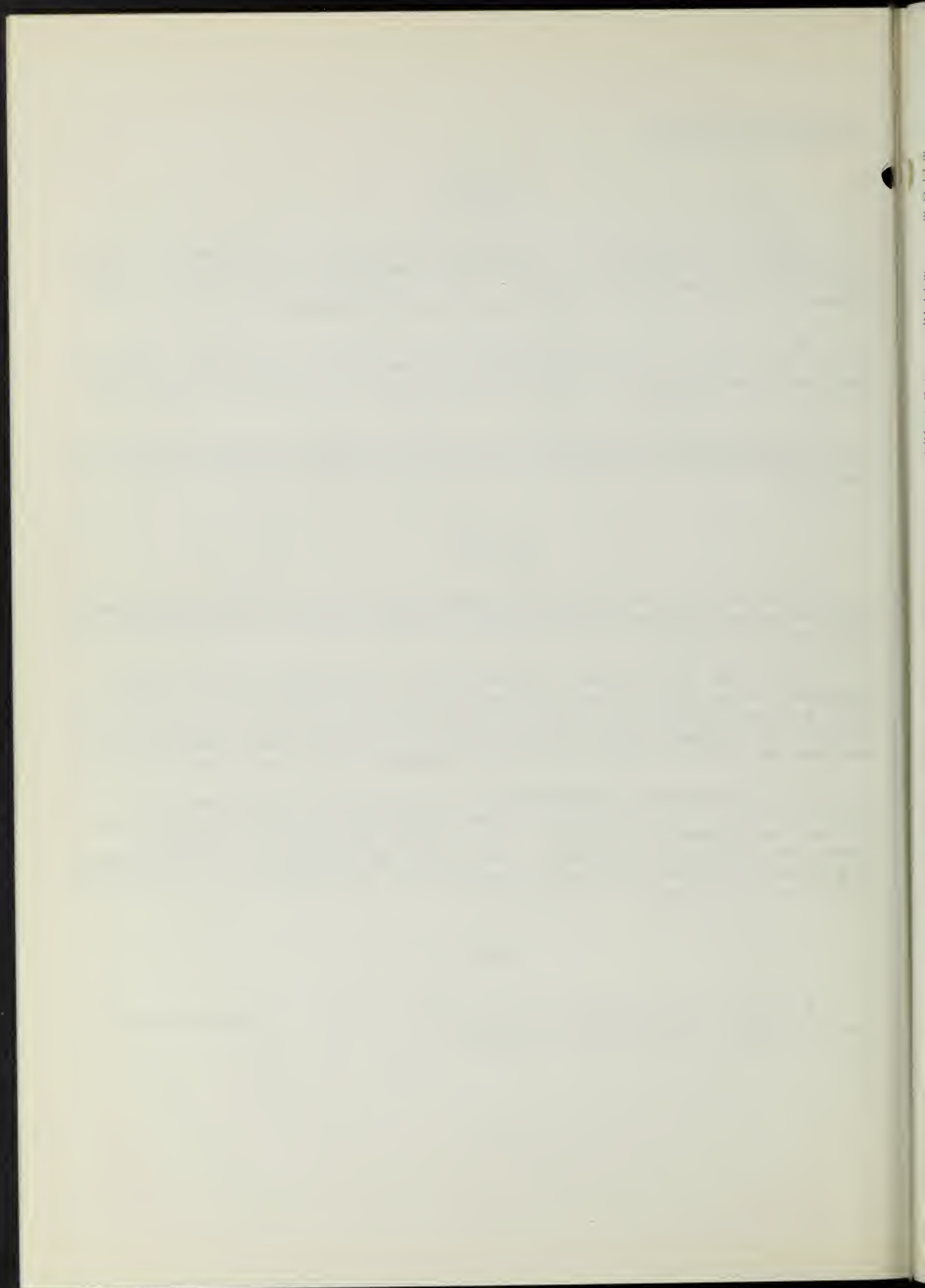
The first of 310 new, low-pollution, air-conditioned, radio-equipped buses arrived on the property. Purchased as part of an \$8.2 million capital facilities grant approved in May of 1971 by the Urban Mass Transportation Administration, these buses reduced the average age of the fleet from over fourteen years to seven.

The Urban Mass Transportation Administration approved a \$25,413,333 capital facilities grant requested for the Green Line System Improvements Program. The planned improvements include: track and roadbed, structures, new power distribution system, signals and communications, and new or modernized maintenance and repair facilities at Riverside and Reservoir.

### MARCH

A construction contract was awarded for site preparation work for the South Bay Maintenance Center.





Timed-lighting was installed in a newly-painted rainbow-colored archway in the pedestrian passageway connecting the State Orange Line Station and the State Blue Line Station. The timed lighting-color spectrum idea won a 1971 competition sponsored by the Authority and the Institute of Contemporary Art.

The Superior Court denied the Authority's petition to vacate the arbitrator's award of \$18 million for the Boston & Maine's Reading Line; the Authority then filed a claim of exception and claim of appeal with the Supreme Judicial Court of the Commonwealth.

The Commonwealth's Executive Office of Transportation and Construction held public hearings in Boston, Bridgewater and Framingham on the application to the Urban Mass Transportation Administration for a 10-year, \$19.5 million Advance Land Acquisition Loan for the purchase of about 145 miles of rights-of-way and related properties, owned by the Penn Central Transportation Company.

#### APRIL

A new crosstown bus began operating between Boston City Hospital and Kenmore Station, providing service to many medical, educational and cultural institutions.

A design engineering contract was awarded for the surface connector between the rapid transit complex at South Bay Maintenance Center and the Red Line near Columbia Station.

A construction contract for the School Street Bridge and approaches over the South Shore Extension in Quincy was awarded.

Special sessions to register eligible senior citizens for reduced-fare identification cards were held in suburban communities.

#### MAY

A contract was awarded for preliminary tunneling studies for the Harvard-Alewife Extension of the Red Line.

The Urban Mass Transportation Administration awarded a \$9,565,086 capital facilities grant for Phase II of the Station Modernization Program, estimated to cost \$14,347,630. To be completely modernized are: State Station on the Orange and Blue Lines; Haymarket and Essex on the Orange Line; Ashmont, Washington and Park on the Red Line, and Park and Auditorium on the Green Line.

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A modernistic new entrance to Essex Station on the Orange Line was opened. Built of stainless steel with laminated-type glass and walls of glazed bronze-colored brick, the new entrance is heated and has a roll-up security door.

Public hearings were held in Boston on four applications for capital facilities grants from the Urban Mass Transportation Administration. The grant requests were for:

- \$32,800,000 for the purchase of 150 to 175 new Light-Rail Vehicles for the Green Line.
- \$1,573,147 to modernize Dover, Northampton, Dudley, Egleston, Green and Forest Hills elevated stations on the Orange Line, and to build a new police and maintenance building and a new revenue collection building.
- \$30,584,133 for a new power generation facility and modernization of the power distribution system.
- \$25,584,133 for the purchase of 44 new rapid transit cars for the Orange Line and 36 new cars for the Blue Line; 125 new buses; and modernizing 100 existing Orange Line cars, 92 Red Line cars, and 37 Blue Line cars.

#### JUNE

The first class in a newly-created M.B.T.A. Management Institute, a 10-week training program in management skills for management employees, was held under the direction of the Personnel Directorate.

#### JULY

The Authority re-instituted bus routes in 18 communities which lost service when the Middlesex and Boston Street Railway terminated operations.

The Advisory Board reduced a \$20.2 million supplementary budget request by 75 percent; the General Court then passed emergency legislation authorizing the Authority's Board of Directors, by unanimous vote, to restore any or all of the budget cuts made by the Advisory Board. The legislation set a budget ceiling of \$154,671,000 and ended the threat of a transportation crisis.

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The General Court authorized the Commonwealth to pay 100 percent of the cost of all commuter trains for a 12-month period.

A contract was awarded for the preliminary design for track, roadbed and related improvements for the Green Line System Improvements Program.

#### AUGUST

The Authority and the San Francisco Municipal Railway Improvement Corporation signed an agreement for the joint purchase, through competitive bidding, of 230 Light-Rail Vehicles. The agreement is believed to be the first entered into by two transportation agencies for a joint purchase order.

A construction contract was awarded for a new bus servicing building, including a bus washer, at Lotus Place, the Arborway Yard.

A construction contract was awarded for the rapid transit repair shop and equipment, substation and ancillary buildings, for the Red Line Rapid Transit Complex at the South Bay Maintenance Center.

#### SEPTEMBER

The Authority successfully marketed \$40 million in General Transportation System Bonds, 1972 Series A. The proceeds will be used to provide the local share of funds for federally-aided improvements to the Green Line and the continuing construction of the Haymarket-North Extension and the South Bay Maintenance Center.

Dual celebrations to observe the 75th Anniversary of the opening of the first subway in North America and the first anniversary of the Red Line's South Shore Extension were held at Park Street Station and Quincy Center Station.

A preliminary engineering and design contract was awarded for the power, signals and communications improvements for the Green Line.

A contract for preliminary engineering and design of the maintenance facilities' improvements on the Green Line was awarded.

U. S. Secretary of Transportation John A. Volpe was the principal speaker at the groundbreaking ceremony for the \$37 million South Bay Maintenance Center, South Boston. The Center, for which the Urban Mass Transportation Administration is providing a \$19,120,000 capital facilities grant, will consist of a maintenance and repair facility for the Red Line fleet to replace the Eliot Carhouse in Cambridge, and a 200-Bus Garage to replace the Albany Street Garage in Boston's South End.





## OCTOBER

A cooperative advertising program, affording an opportunity for businessmen in the district to perform a vital public service and, at the same time, permit the Authority to keep the public informed of transportation services that are available, was initiated.

The State Labor Relations Commission ruled that middle management employees, by majority vote, can determine whether they want to become affiliated with a union.

A very critical program of semi-overhaul of 200 Green Line streetcars, including mechanical and electrical work, was initiated.

The Urban Mass Transportation Administration approved a \$32.8 million capital facilities grant toward the purchase of 150 articulated (jointed) Light-Rail Vehicles for the Green Line. The new, longer cars will have semi-upholstered seats, improved lighting, tinted glass windows, air-conditioning and fixed-type heating. They will also be equipped with two-way radios and a public address system.

A new Safety and Training Department in the Operations Directorate was created with the combination of the old Safety Department and the Training and Equipment Department.

## NOVEMBER

A construction contract was awarded for the Wellington Complex, including station, yards and shops, on the Haymarket-North Extension of the Orange Line.

Hard surface-coated polycarbonate material was ordered for window replacement on revenue equipment in an effort to stem the problem of vandals breaking windows on moving trains and buses.

Governor Francis W. Sargent announced his transportation policy for the Boston Region, making far-reaching proposals for transit and highway investment based on recommendations from the Boston Transportation Planning Review, a technical study group created in early 1970.

The first of 10 compact-size buses with seats for 25 passengers was delivered.



## DECEMBER

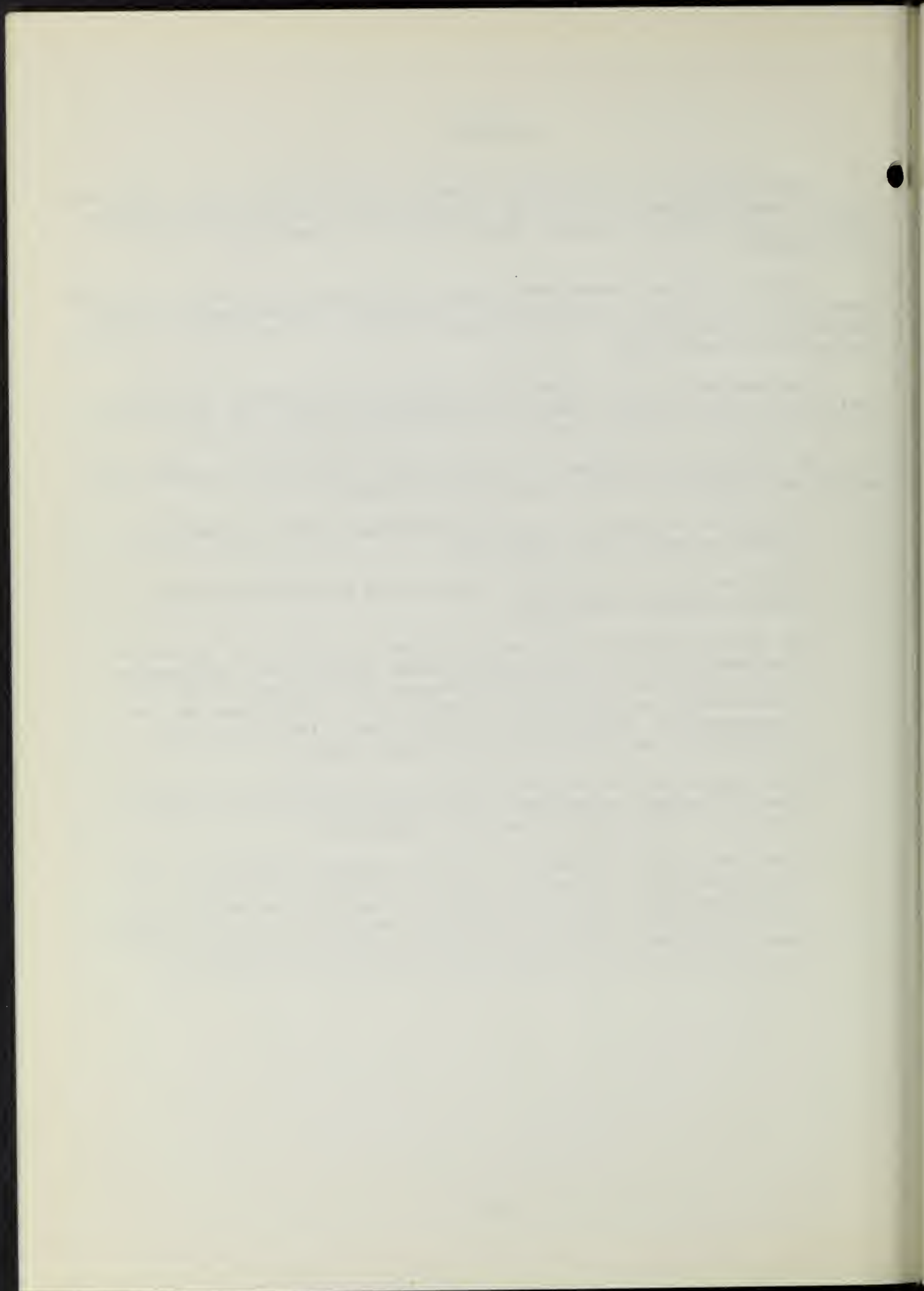
New insulation blocks were ordered for Red Line cars. The new blocks were designed jointly by the Authority and the manufacturer after investigation revealed the original equipment had become a fire hazard.

Boston & Maine passengers began traveling over a new high-level Mystic River Bridge, built in connection with the Haymarket-North Extension. B&M service was switched to the new span from a deteriorated older drawbridge.

The Advisory Board approved a \$152,475,908 budget for 1973 "with the understanding that the Commonwealth shall pay 50 percent of the deficit." The Authority had requested \$158,255,900.

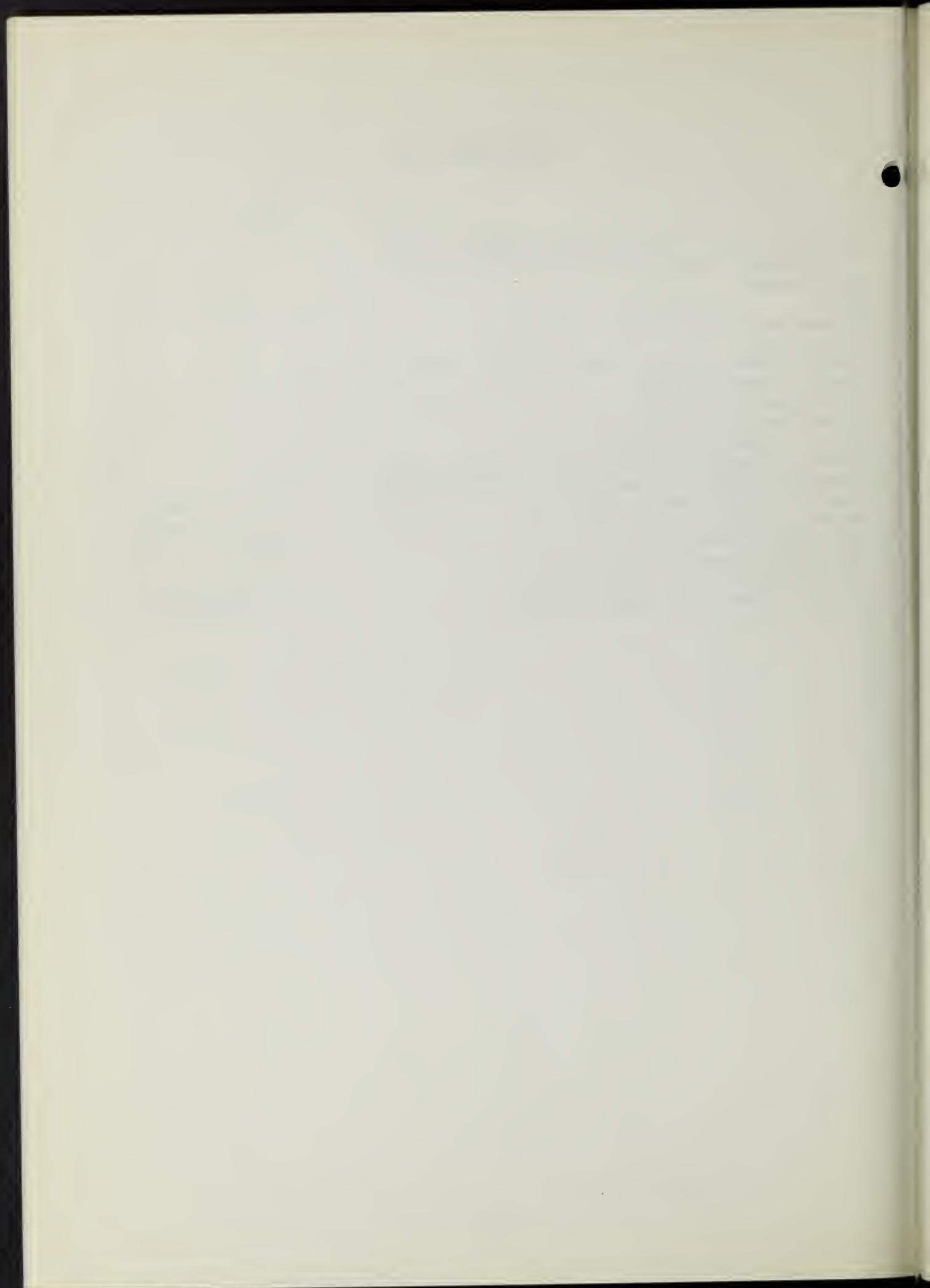
As the year 1972 came to a close, the following progress was noted on a variety of key Authority projects:

- 40 of 50 streetcars being refurbished under a federally-aided program were completed.
- The program to renovate, repaint and modernize 38 Blue Line cars was completed.
- A track upgrading program resulted in 6,000 feet of track reconstructed on the Mattapan High Speed Line, and nearly 20,000 feet of track being renewed on the Green Line - 16,800 feet on the Beacon Street Line, 2,400 feet on the Commonwealth Avenue Line, and 500 feet, including two crossovers, on the Huntington Avenue Line.
- The South Bay Maintenance Center site preparation contract was 85 percent completed; and construction of the Rapid Transit Complex was 10 percent completed.
- The Community College and Sullivan Square Stations on the Haymarket-North Extension were 85 percent completed; the contract for grading, drainage and subsurface utilities, and the construction of the B&M's Medford Branch Underpass, was 31 percent completed; construction of the direct current substations in Malden was nine percent completed.



STATISTICS 1972

Population of 79 Cities and Towns in the Authority District (1970 U.S. Census)	2,763,410
Bus Routes	194
Buses	1,200
Streetcar Routes (Green Line)	5
Streetcars	329
Rapid Transit Routes (Red, Orange and Blue Lines)	3
Rapid Transit Cars	353
Trackless Trolley Routes	4
Trackless Trolleys	55
Single Track Streetcar Mileage	86.7
Single Track Rapid Transit Mileage	77.3
Proposed Rapid Transit Extension Mileage	50.3
Weekly Vehicle Miles Operated	888,345
Weekly Vehicle Trips Operated	80,006
Employees (December 31, 1972)	6,696
Collective Bargaining Units	27
Daily Passengers (Approximate)	500,000
Annual Passengers (Approximate)	150,000,000





ARTHUR ANDERSEN & Co.  
BOSTON, MASSACHUSETTS

To the Board of Directors of

Massachusetts Bay Transportation Authority:

We have examined the balance sheet and statement of long-term debt of MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (a political subdivision of the Commonwealth of Massachusetts) as of December 31, 1972, and the related statements of revenue and cost of service, unreimbursed cost of service, and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the financial position of the Massachusetts Bay Transportation Authority as of December 31, 1972, and the results of its operations and changes in financial position for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

*Arthur Andersen & Co.*

Boston, Massachusetts,

March 16, 1973.

The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The second part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The third part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The fourth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The fifth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The sixth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The seventh part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The eighth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The ninth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe. The tenth part of the paper is devoted to a detailed discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the universe.

Prof. Dr. J. J. van der Waerden

# MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BALANCE SHEET - DECEMBER 31, 1972

## A S S E T S

TRANSPORTATION PROPERTY, at cost (Notes 1 and 6):  
 Transportation property in service  
 Construction in progress

Less- Reserve for depreciation (Note 1)

SPECIAL FUNDS--Cash, Certificates of Deposit  
 and U. S. Government Securities, at cost:  
 Construction funds, held by the bond  
 fiscal agent  
 Funds received for relocation of  
 facilities (Note 3)  
 Federal grants and other special  
 funds (Note 1)

## CURRENT ASSETS:

Cash  
 Certificates of Deposit  
 Accounts receivable-  
 Commonwealth of Massachusetts  
 Boston Redevelopment Authority (Note 7)  
 Other  
 Materials and supplies, at average cost  
 Prepaid expenses

## DEFERRED CHARGES:

Unamortized expansion and modernization  
 costs (Notes 1 and 8)  
 Other

## L I A B I L I T I E S

LONG-TERM DEBT, exclusive of current maturities,  
 see accompanying statement (Note 5)

UNREIMBURSED COST OF SERVICE (Note 1)

## CURRENT LIABILITIES:

Current maturities of long-term debt  
 Notes payable  
 Accounts payable  
 Accrued liabilities-  
 Payroll  
 Interest  
 Other

COMMITMENTS AND CONTINGENCIES (Notes 1,  
 4, 6 and 10)

DEFERRED CREDITS (Note 3)

GRANTS--UNAMORTIZED PORTION (Notes 1 and 7)

Federal grants  
 Boston Redevelopment Authority

The accompanying notes are an integral part of these financial statements.

\$304,563,261

(8,658,790)

\$ 9,849,593  
 80,000,000  
 8,045,897  
 1,873,061  
 3,735,385  
 1,255,703

104,759,639

\$ 9,024,581  
 68,905,017  
 12,568,183  
 5,829,582  
 2,475,791  
 4,419,205  
 250,961

7,011,520

\$ 9,057,304  
 605,465

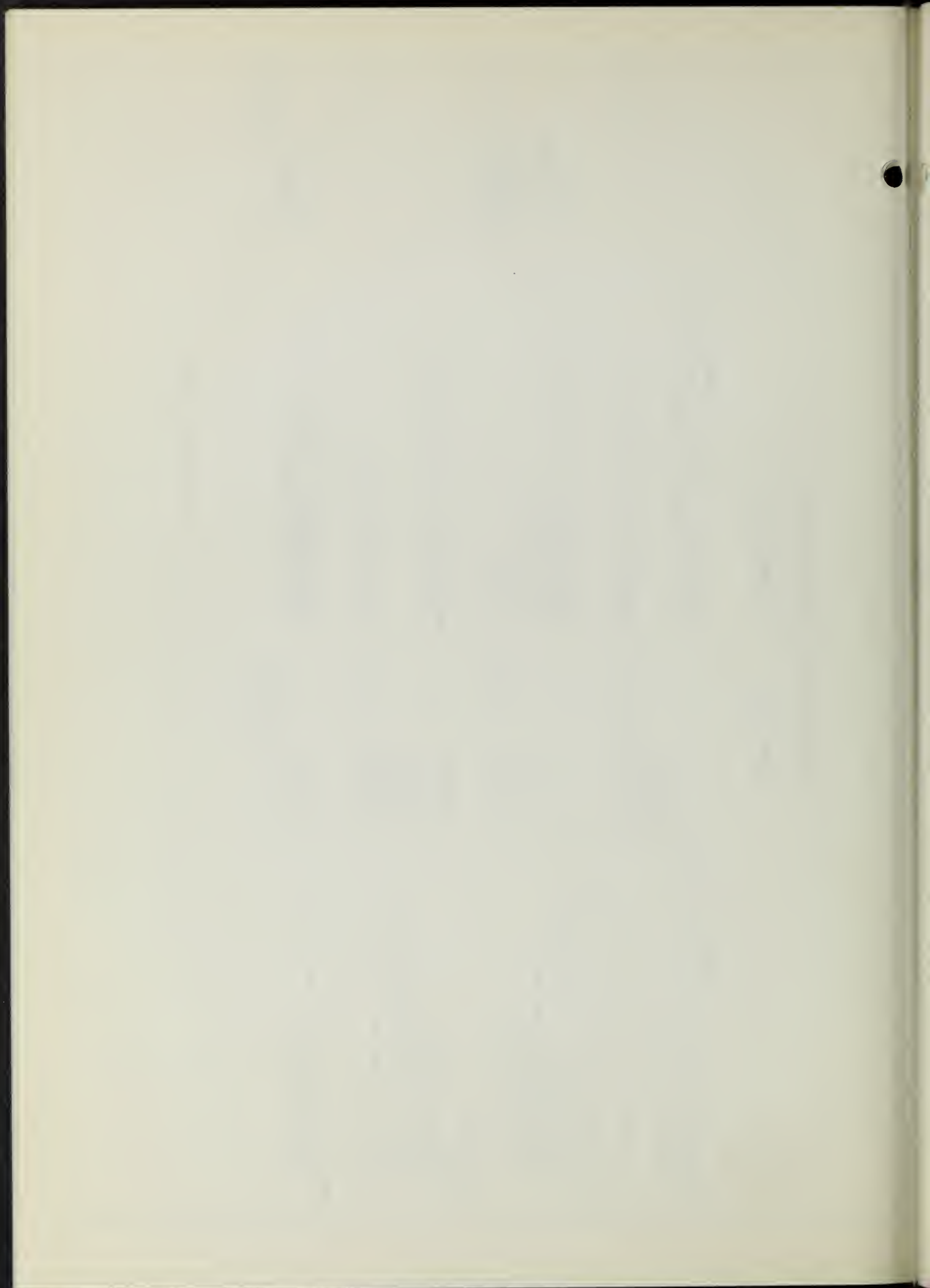
9,662,769

\$482,780,617

\$65,715,548  
 9,389,439

75,104,987

\$482,780,617



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF REVENUE AND COST OF SERVICE

FOR THE YEAR ENDED DECEMBER 31, 1972

OPERATING REVENUE:

Transportation	\$ 53,690,599
Other	1,275,491
	-----
	\$ 54,966,090
	-----

OPERATING EXPENSES (Note 9):

Transportation service	\$ 58,200,030
Maintenance	29,247,813
Electric power	6,398,349
Depreciation and amortization (Notes 1 and 8)	9,951,236
General and administrative expenses-	
Salaries and wages	6,744,120
Employee pension and insurance	
benefits (Note 1)	17,727,853
Injuries and damages and workmen's	
compensation claims (Note 1)	2,403,440
Other	2,115,186
	-----
	\$132,788,027
	-----

Operating loss \$ (77,821,937)

OTHER INCOME, including interest of \$4,247,877 4,872,019

INTEREST EXPENSE, including \$11,899,703 on  
long-term debt (14,230,517)

RAILROAD COMMUTER SUBSIDIES, including  
amortization of the original Railroad Contract  
Assistance Program of \$325,000 (Notes 1, 2 and 8) (1,377,953)

Cost of service in excess of revenue \$(88,558,388)  
=====

The accompanying notes are an integral  
part of these financial statements.



THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

LABORATORY OF ORGANIC CHEMISTRY

REPORT OF THE RESEARCH WORK OF THE  
LABORATORY OF ORGANIC CHEMISTRY  
DURING THE YEAR 1924

BY  
J. H. HARRIS

CHICAGO, ILL., 1925

THE UNIVERSITY OF CHICAGO PRESS

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF UNREIMBURSED COST OF SERVICE

FOR THE YEAR ENDED DECEMBER 31, 1972

BALANCE DECEMBER 31, 1971	\$ 8,708,815
ADD- Cost of service in excess of revenue for the year ended December 31, 1972	88,558,388
DEDUCT:	
Cost of service reimbursed by the Commonwealth of Massachusetts to be assessed to the cities and towns constituting the Authority	73,413,737
Contract Assistance, portion of the cost of service paid by the Commonwealth of Massachusetts in accordance with a contract for financial assistance between the Authority and the Commonwealth, pursuant to Chapter 563 of the Acts of 1964 and Chapter 147 of the Acts of 1968, as amended	12,624,749
Cost of service reimbursed by the cities and towns outside the Authority's area	361,418
State diesel and gasoline fuel taxes reimbursable to the Authority in accordance with Section 2 of Chapter 563 of the Acts of 1964	369,107
Amortization of Federal grants (Notes 1 and 7)	1,839,402
BALANCE DECEMBER 31, 1972 (Note 1)	----- \$ 8,658,790 =====

The accompanying notes are an integral  
part of these financial statements.

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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF CHANGES IN FINANCIAL POSITION

FOR THE YEAR ENDED DECEMBER 31, 1972

FUNDS WERE USED FOR:

Cost of service in excess of revenue	\$ 88,558,388
Less- Charges to cost of service in excess of revenue which did not require funds-	
Depreciation of transportation property (Note 1)	(9,804,360)
Amortization of deferred charges (Notes 1 and 8)	(471,876)
	-----
	\$ 78,282,152
Additions to transportation property, net	31,220,512
Increase in special funds, net	20,576,436
Increase in deferred charges	152,642
Reduction in long-term debt (Notes 5 and 6)	9,820,592
	-----
Total funds used	\$140,052,334
	-----

FUNDS WERE PROVIDED BY:

Net cost of service reimbursable by the Commonwealth of Massachusetts for the 1972 deficit to be assessed to the cities and towns constituting the Authority (Note 1)	\$ 73,413,737
Contract assistance on debt service (Note 6)	12,624,749
Reimbursement by the Commonwealth of Massachusetts of state diesel and gasoline fuel taxes	369,107
Reimbursement by cities and towns outside the Authority's area for service provided	361,418
Grants from Federal and other sources (Notes 1 and 7)	13,947,569
Increase in long-term debt (Notes 5 and 6)	40,000,000
Increase in deferred credits	304,815
	-----
Total funds provided	\$141,021,395
	-----

RESULTING IN A WORKING CAPITAL INCREASE OF

\$ 969,061  
=====

CHANGES IN WORKING CAPITAL CONSIST OF:

Increase (decrease) in current assets-	
Cash	\$ (3,688,741)
Certificates of deposit	6,068,170
Accounts receivable	5,211,886
Materials and supplies	905,096
Prepaid expenses	(142,883)
	-----
	\$ 8,353,528
	-----
Increase (decrease) in current liabilities-	
Current maturities of long-term debt	\$ 1,296,334
Notes payable	7,000,000
Accounts payable	(514,754)
Accrued liabilities	(397,113)
	-----
	\$ 7,384,467
	-----
Increase in working capital	\$ 969,061
	=====

The accompanying notes are an integral  
part of these financial statements.

THE UNIVERSITY OF CHICAGO  
LIBRARY  
100 EAST 57TH STREET  
CHICAGO, ILL. 60637

1951

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CHICAGO, ILL. 60637  
1951

THE UNIVERSITY OF CHICAGO  
LIBRARY  
100 EAST 57TH STREET  
CHICAGO, ILL. 60637  
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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF LONG-TERM DEBT (Note 5)

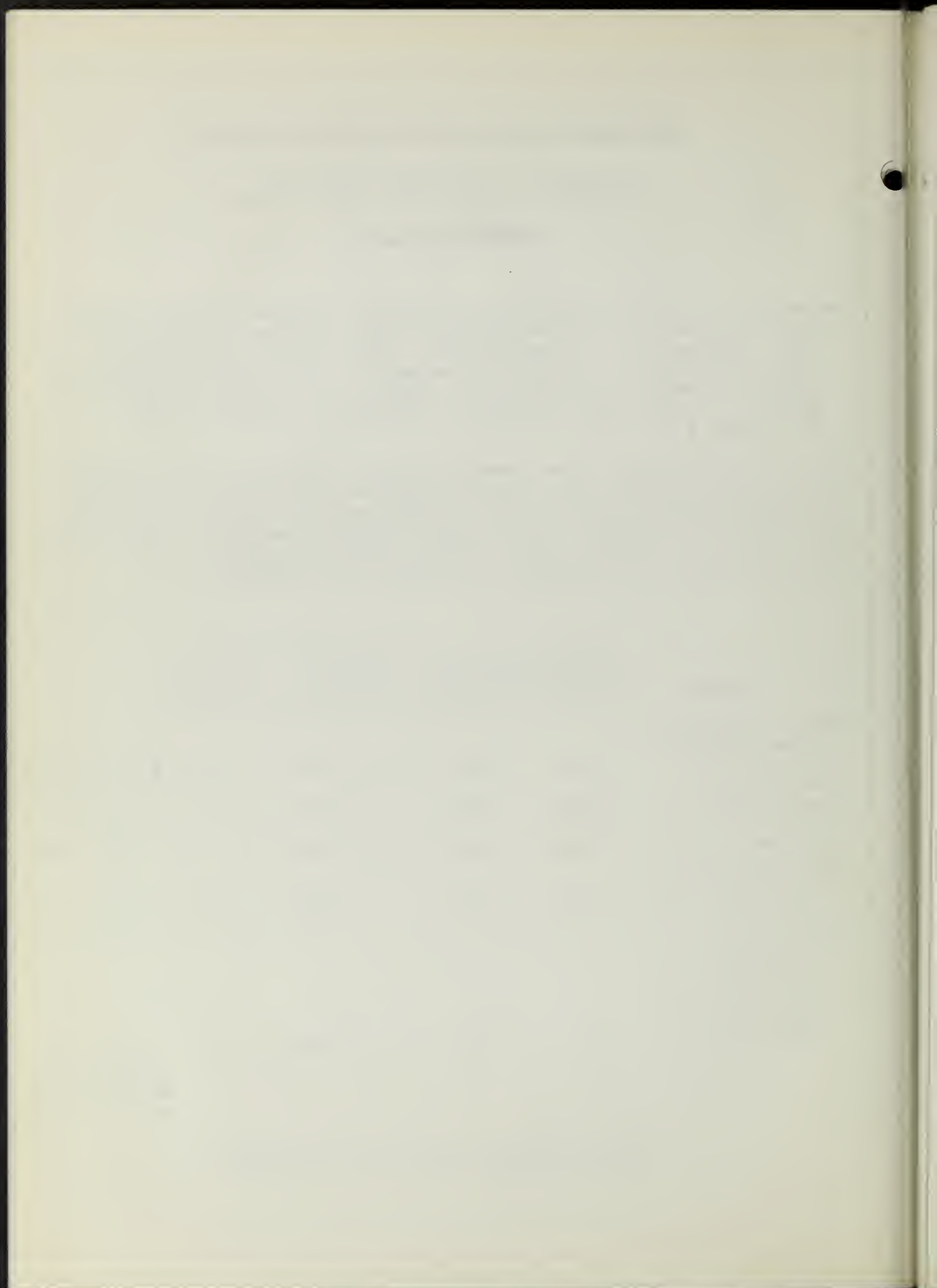
DECEMBER 31, 1972

Massachusetts Bay Transportation Authority General Transportation System Bonds issued under General Laws, Chapter 161A, Section 23 of the Commonwealth of Massachusetts, 1967 Series A, dated March 1, 1967, 1970 Series A, dated September 1, 1970, and 1972 Series A, dated September 1, 1972 are all payable in annual installments on March 1 -- interest is payable semiannually on March 1 and September 1.

1967 Series A Bonds - The proceeds of the sale of the 1967 Series A Bonds were required to be used for payment of \$40,000,000 of Bond Anticipation Notes outstanding and the balance of \$70,000,000 were required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1972, is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	
Express service transportation facilities	1969	2007	\$1,900,000	3.78%	\$ 66,475,000
Agreement with railroads	1968	1982	338,000	3.75	3,375,000
Buses and other purposes	1968	1979	325,000	3.75	2,275,000
Local service transportation facilities	1969	2007	50,000	3.78	1,750,000
Capital cost of certain transportation facilities including yards, shops and rolling stock	1969	2007	650,000	3.78	22,700,000
					-----
					\$ 96,575,000
					-----

The accompanying notes are an integral part of these financial statements.



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF LONG-TERM DEBT (Note 5)

DECEMBER 31, 1972

(Continued)

1970 Series A Bonds - The proceeds of the sale of the 1970 Series A Bonds were required to be used for payment of \$5,365,000 of Bond Anticipation Notes outstanding and the balance of \$61,500,000 were required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1972, is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	
Express service transportation facilities	1971	2010	\$1,540,000	6.31%	\$ 58,420,000
Buses and other purposes	1971	1982	295,000	6.11	2,910,000
Purchase and improvement of the Cambridge subway	1971	1980	190,000	6.17	1,485,000
					-----
					\$ 62,815,000
					-----

1972 Series A Bonds - These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1972 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	
Express service transportation facilities and other capital costs of the transportation system	1973	2012	\$ 865,000	5.26%	\$ 34,500,000
Bus acquisition	1973	1984	290,000	5.40	3,500,000
Bus garages	1973	1984	170,000	5.40	2,000,000
					-----
					\$ 40,000,000
					-----

The accompanying notes are an integral  
part of these financial statements.



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF LONG-TERM DEBT (Note 5)

DECEMBER 31, 1972

(Continued)

Metropolitan Transit Authority Bond, payable in semiannual installments of \$500,000 to December, 2020 -- Interest payable is the interest payable by the Boston Metropolitan District on their contra debt and refunding issues, which for the year ended December 31, 1972, was 3.46%

\$ 47,918,371

Rapid Transit Bond, payable in annual installments of \$536,259 to November, 2024 -- Interest is the actual interest on the City of Boston Transit Debt and refunding issues less income collected on the City's transit debt sinking funds, which for the year ended December 31, 1972, was 4.08%

\$ 27,885,481

Equipment Serial Bonds:

<u>Year of</u> <u>Maturity</u>	<u>Approximate</u> <u>Annual Payment</u>	<u>Interest</u> <u>Rate</u>		
1973	\$ 45,000	2.50%	\$ 45,000	
	90,000	3.50	<u>90,000</u>	\$ 135,000
1974	8,000	3.00		13,000
1975	122,000	3.00		354,000
1977	219,000	3.00		1,095,000
1978	176,000	3.00		1,054,000
1981	127,000	1.50		1,143,000
1987	127,000	2.90		1,912,000
1988	131,000	2.90		2,096,000
1993	169,000	3.00	\$3,549,000	
	100,000	3.20	<u>2,100,000</u>	5,649,000
	-----			-----
	\$1,314,000			\$ 13,451,000
	=====			-----

The accompanying notes are an integral part of these financial statements.



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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF LONG-TERM DEBT (Note 5)

DECEMBER 31, 1972

(Continued)

Construction Bonds:

2.00%, payable \$102,000 per annum to November 21, 1979, and \$4,590,000 on November 25, 1979	\$ 5,304,000
1.50%, payable \$84,333 per annum to March 1, 1981, and \$3,781,667 on March 1, 1981	4,540,667
2.10%, payable \$22,000 per annum to January 15, 1982, and \$990,000 on January 15, 1982	1,210,000
2.75%, payable \$47,000 per annum to March 1, 1983, and \$2,115,000 on March 1, 1983	2,632,000
2.30%, payable \$10,000 per annum to March 1, 1984, and \$450,000 on March 1, 1984	570,000
3.00%, payable \$55,000 per annum to July 1, 1988, and \$2,475,000 on July 1, 1988	3,355,000
3.60%, payable \$69,667 per annum to February 1, 1989, and \$3,135,000 on February 1, 1989	4,319,333
3.50%, payable \$19,000 per annum to September 15, 1990, and \$855,000 on September 15, 1990	1,197,000
3.20%, payable \$40,000 per annum to April 15, 1993, and \$1,800,000 on April 15, 1993	2,640,000

-----  
\$ 25,768,000

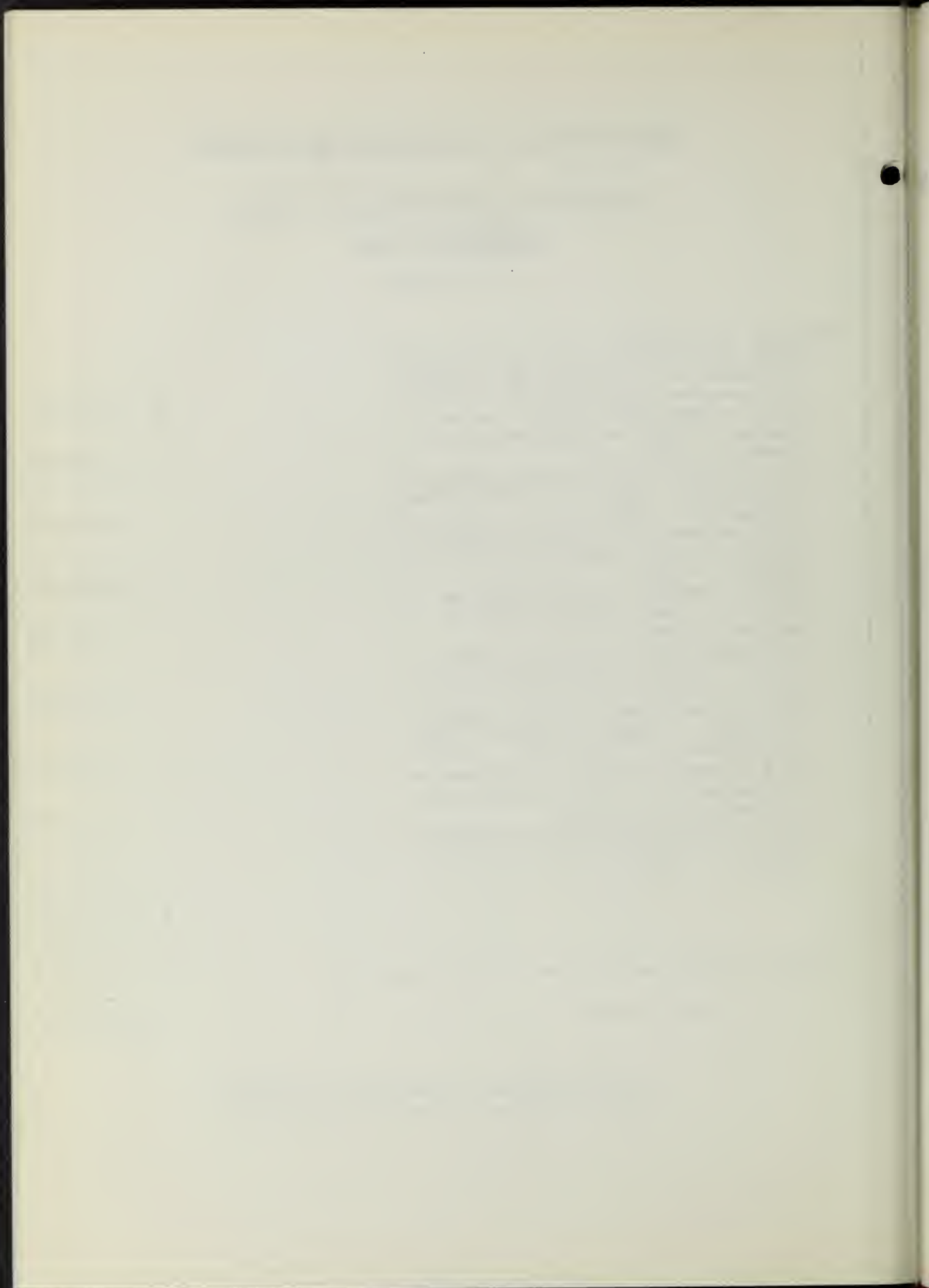
-----  
\$314,412,854  
9,849,593

Less- Current maturities of long-term debt

Long-term debt

-----  
\$304,563,261  
=====

The accompanying notes are an integral part of these financial statements.



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1972

(1) Summary of Significant Accounting Policies

(a) Transportation Property

Transportation property is stated at historical cost. Such costs include MBTA labor costs for employees working on capital projects plus related fringe benefits and an allocated share of general and administrative costs. The cost of funds required to finance the expansion of the transportation system is expensed currently.

(b) Depreciation

Depreciation is provided in the accounts based on the straight-line method at rates which are designed to amortize the original cost of the property over its estimated useful life. Depreciation rates applied during 1972 ranged from 1.23% to 33.33% depending upon the type of property. The average rate based on depreciable property in service during 1972 was 3.30%.

(c) Deferred Charges

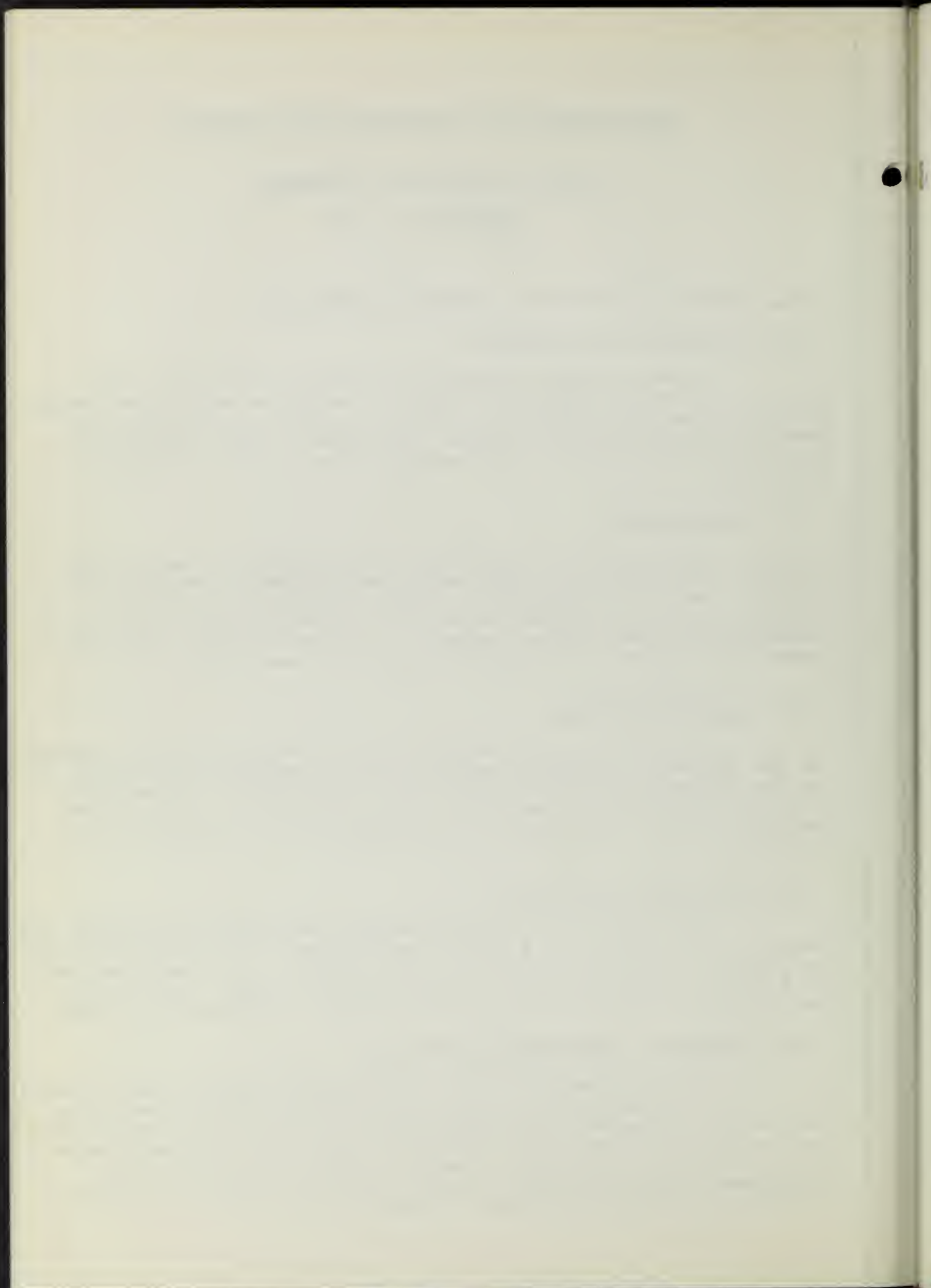
Certain costs incurred by the Authority, primarily related to the expansion and modernization of the transportation system as further described in Note 8, have been capitalized. These costs are then amortized by charges to cost of service over the future periods in which the benefit to the Authority is estimated to be realized.

(d) Injuries and Damages

The Authority is a self-insurer on claims for injuries and damages to the extent of \$100,000 per accident. Insurance coverage is carried on claims in excess of that amount up to a maximum limit of \$15,100,000 per accident. The Authority accounts for injuries and damages by charges to operating expenses as payments are made.

(e) Workmen's Compensation Insurance

Effective May 1, 1965, the Authority became a self-insurer on workmen's compensation claims under the workmen's compensation laws of the Commonwealth of Massachusetts to the extent of \$50,000 per occurrence. Insurance coverage is carried on each occurrence in excess of that amount up to a maximum limit of \$2,050,000 per occurrence. The Authority accounts for these claims by charges to operating expenses as payments are made.





MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1972

(Continued)

(1) Summary of Significant Accounting Policies (Continued)

(f) Unreimbursed Cost of Service

The legislative act under which the Massachusetts Bay Transportation Authority was established provides, among other things that the Commonwealth of Massachusetts shall reimburse the Authority for the net cost of service. The amounts reimbursed are then assessed to the 79 cities and towns constituting the Authority. The "net cost of service", as defined, includes a charge equal to the payments made on long-term debt during the period, and does not include a charge for depreciation. For financial reporting purposes however, the Authority follows the generally accepted method of depreciating the cost of property over its estimated useful life.

The cumulative excess of depreciation charges over payments made on long-term debt is charged to the unreimbursed cost of service account and is recovered in years when payments made on long-term debt exceed depreciation. During the year ended December 31, 1972, depreciation charges exceeded payments on long-term debt by \$1,607,114.

(g) Grants

The Authority receives grants from certain governmental agencies (see Note 7) to be used for various purposes connected with the planning, modernization and expansion of transportation facilities. These grants are deferred until such time as the related facilities are put into service. The credits are then amortized over the estimated useful life of the assets as a reduction of Unreimbursed Cost of Service.

(h) Pension

The Authority funds its pension cost currently. Based on recent actuarial valuations, the current level of contribution, together with members' contributions, is intended to provide for current service costs and to provide for past service costs over the remaining period of employment of the members.



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1972

(Continued)

(2) Railroad Commuter Subsidies

Under Chapter 24 of the Acts of 1967 and Chapter 728 of the Acts of 1968, as amended, the Authority and the Commonwealth of Massachusetts entered into agreements whereby the Commonwealth will subsidize, up to certain specified limits, 90% of the cost of financing agreements with the railroads to provide service to and from Boston until July 31, 1972, and 100% of the cost from August 1, 1972 through July 31, 1973. In accordance with these agreements, financial assistance paid or payable to the Boston & Maine and Penn Central Railroads and expenses related thereto amounted to \$7,255,401 during the year ending December 31, 1972; \$6,202,448 paid by the Commonwealth and \$1,052,953 paid by the Authority.

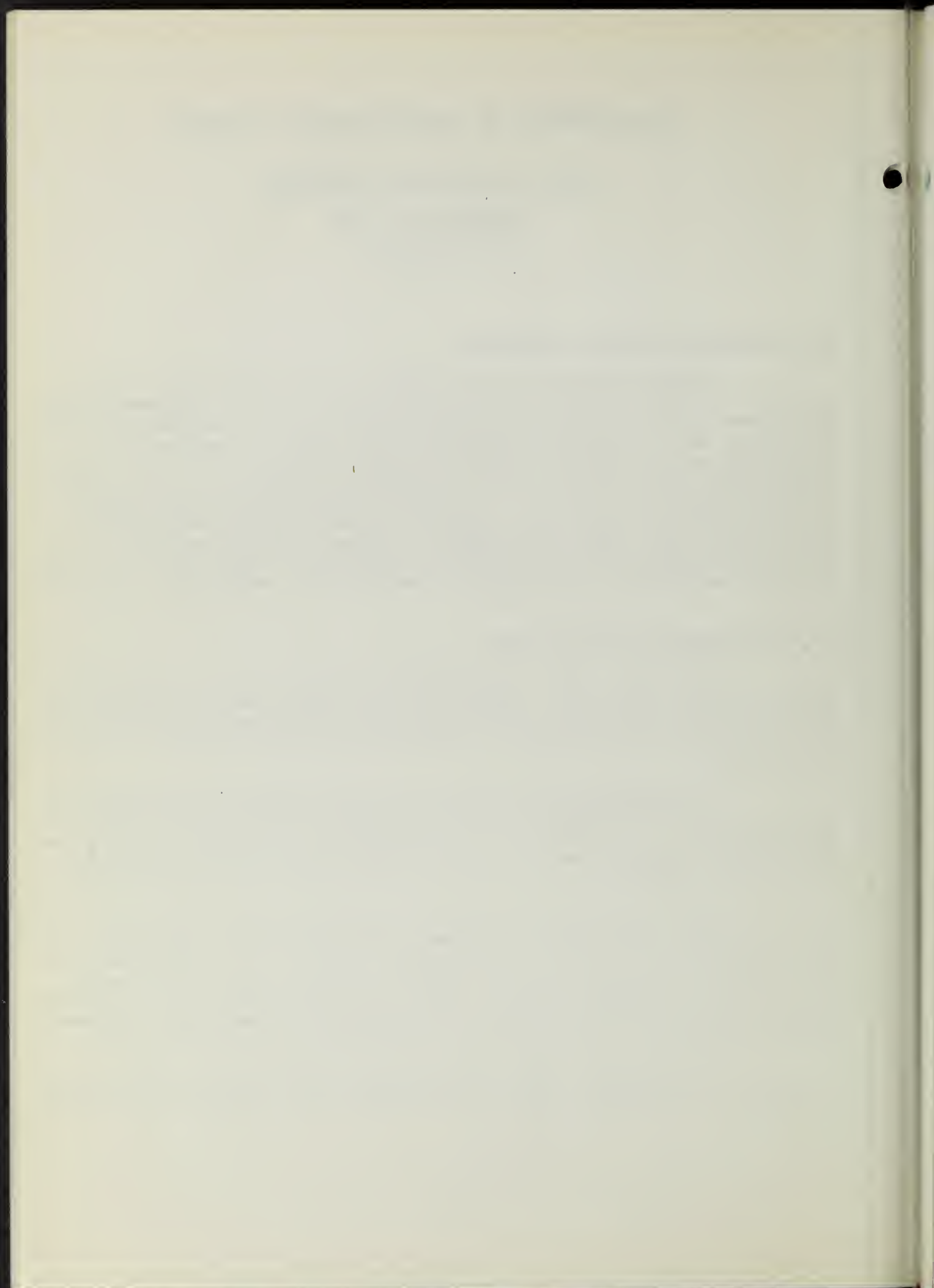
(3) Relocation of Facilities

In April, 1967, the Authority entered into an agreement with the John Fitzgerald Kennedy Library Incorporated, whereby the Authority would relocate certain transportation facilities in order to convey certain properties to the United States and the Library Corporation.

The Commonwealth of Massachusetts appropriated \$6,098,400 to the Authority for the part of the properties conveyed to the United States. In addition, the Authority received \$1,330,112 from the Library Corporation for the remaining part of the properties, totaling \$7,428,512.

These facilities, having a net book value of \$709,807, have been retired. The amount received in excess of net book value (\$6,718,705), less \$12,000 of expenses incurred in connection with the acquisition of replacement property, is included in Deferred Credits on the balance sheet. When the replacement facilities have been constructed, this credit will be amortized over their estimated useful lives as an offset to the applicable depreciation expense.

In December, 1969, the Authority purchased for \$7,000,000 a parcel of property to be used to replace the facilities conveyed in 1967.





MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1972

(Continued)

(4) Pension

The Authority has agreed to provide retirement benefits to employees through a contributory pension plan which, as currently amended, requires the payment by the Authority of an amount equal to 11-5/8% of the total payroll of employees who are members of the plan. The total pension cost to the Authority for the year ended December 31, 1972, was approximately \$10,350,000 which was funded currently. The most recent actuarial valuation was made as of December 31, 1971, and at that time unfunded past service costs approximated \$98,000,000. The actuarially computed value of the vested benefits of the plan as of December 31, 1971, exceeded the pension fund assets by approximately \$45,000,000.

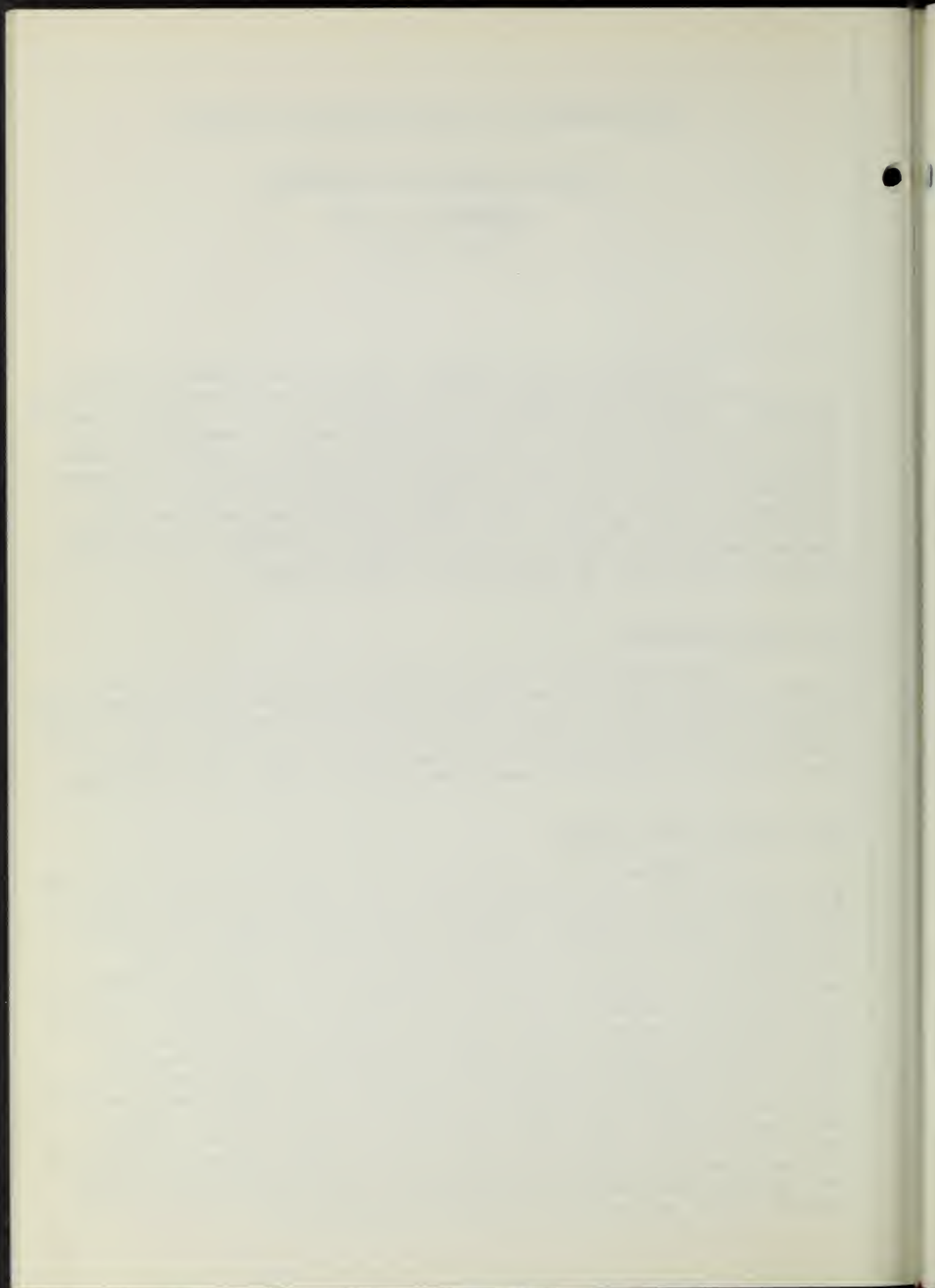
(5) Long-Term Debt

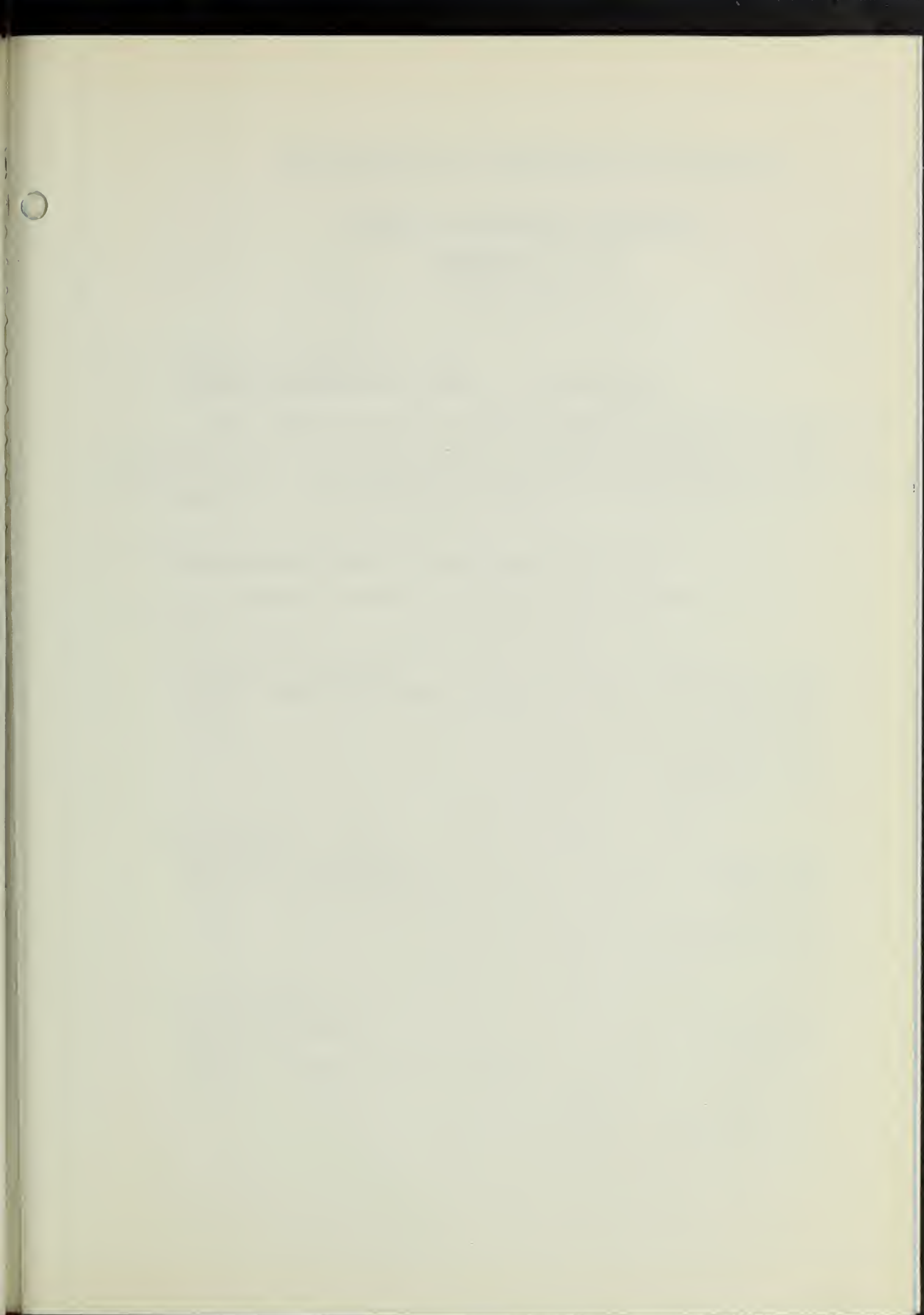
The legislative act under which the Massachusetts Bay Transportation Authority was established provides, among other things if at any time any principal or interest is due on any bond or note issued or assumed by the Authority and funds to pay the same are not available, the Commonwealth of Massachusetts shall thereupon pay over to the Authority the amount required to meet such obligations.

(6) Construction Program

The Authority's program for mass transportation within the area constituting the Authority involves a total estimated cost of \$765,000,000. Financing requirements for the program are expected to be met through various sources, including the issuance by the Authority of \$349,000,000 of long-term debt securities. The legislative act authorizing the issuance of debt securities was amended during 1971 and currently provides for participation by the Commonwealth of Massachusetts in the payment of annual debt service costs on bonds issued by the Authority as follows: On the \$175,000,000 of bonds issued prior to January 1, 1971, the debt service on \$144,800,000 is eligible for contract assistance at either 90% or 50%, as provided by contract; the annual debt service on bonds issued after January 1, 1971, is eligible for contract assistance at 90%. However, regardless of when issued, contract assistance on debt service will not be extended to over \$257,000,000 of bonds issued at any time. The remaining financing requirements are expected to be met through Federal transit aid, Federal urban renewal funds and relocation cost reimbursements.









MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1972

(Continued)

(8) Unamortized Expansion and  
Modernization Costs (Note 1) (Continued)

The other deferred expenses relating to the expansion and modernization of the Transportation System are being amortized by charges to cost of service over forty years commencing in 1972. Amortization in 1972 amounted to \$131,592 and the unamortized balance at December 31, 1972 was \$5,132,078.

(9) Supplementary Operating Expense Information

Operating expenses captioned below consist of the following:

Transportation services-	
Salaries and wages	\$52,119,432
Taxes, including payroll taxes	2,665,822
Fuel	896,445
Other	2,518,331
	-----
	\$58,200,030
	=====
 Maintenance-	
Salaries and wages	\$21,456,322
Materials and supplies	6,980,398
Taxes, including payroll taxes	811,093
	-----
	\$29,247,813
	=====
 Electric power-	
Salaries and wages	\$ 2,530,066
Power purchased	1,072,584
Fuel	2,511,395
Taxes, including payroll taxes	94,313
Other	189,991
	-----
	\$ 6,398,349
	=====





MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1972

(Continued)

(10) Subsequent Events

On January 26, 1973, the Authority purchased 145 miles of Penn Central's track and related properties in Eastern Massachusetts financed with a \$19.5 million loan from the Department of Transportation. The Authority has unconditionally guaranteed to repay 25% of the principal plus accrued interest and has promised to repay the balance of the loan out of proceeds from the sale of the property. The property is intended for expansion of the mass transportation system.

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

LABORATORY OF PHYSICAL CHEMISTRY

CHICAGO, ILL.

1911

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